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PAPER TRADE JOURNAL

With Which Is Combined

PAPER

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Canadian Tax on U. S. Publications Fails

Montreal Newspaper Claims Customs Tax Designed to Keep Popular American Magazines and Periodicals Out of Dominion, Has Degenerated into Nuisance—Declares Tax Is Probably Costing More to Collect Than It Returns in Revenue—Concern About News Print Trade of New Zealand

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., November 2, 1931.—That the new customs tax on American publications has completely failed in its objectives, and has degenerated into a nuisance tax that is possibly costing more to collect than it returns in revenue, is the claim made editorially by the *Montreal Herald*. The tax, according to its sponsor, Premier Bennett, had two objects. One was to keep out of Canada popular American magazines which carried American advertisements for American products into Canadian homes. The other was to keep out of Canada publications of a lurid and salacious character.

As regards the first object, The *Herald* says: "The largest medium for American advertising in Canada is the *Saturday Evening Post*. The price of that magazine in Canada is exactly the same as before Mr. Bennett's measure went into effect. So is the price of every other popular American magazine. Go to the nearest bookstall. Can you see any difference? It is plastered with popular American magazines.

"Next to popular magazines, trade papers form the other important medium for American advertising. On these a tax of 5 cents per copy has been put, a petty, spiteful gesture that cannot be defended on any grounds. Put yourself in the position of a manufacturer. You want to know what is doing in your line of business, not only in Canada, but all over the world. And especially you want to know what your American competitors are doing.

"The trade magazine gives you a close-up view of every new angle of manufacture and sales policy, every fresh discussion and discovery and review of technical and trade practice. Can a Canadian trade publication give you that?

"For instance, there are 80 pulp mills and 77 paper mills in Canada—a total of 157 mills. Can a Canadian publisher gather all the necessary trade information from all over the world that is needed by them in return for the circulation his publication is likely to have among the executive, technical and sales staffs of 157 mills? Certainly not.

"The American trade publication is necessary, as well as the Canadian. Can anyone imagine that the Canadian manufacturer is going to deprive himself of that information for a total of 5 cents per copy—$2.50 a year for a weekly publication or 60 cents per year for a monthly one? The idea is ridiculous. Therefore Mr. Bennett's measure in this respect is futile.

"As regards the lurid literature, Canadian publishing houses have co-operated with American publishers to defeat the object of the measure. They have made arrangements with them by which the plates will be shipped into Canada and the publications run off printing presses for Canadian circulation on this side of the line. The price to Canadian readers is the same as before, and Canadian co-operation is now given to American publishers to push the sales to the utmost. In respect to salacious publications the Government already had the power to prohibit them, and if they come into this country, then it means that the Government is neglecting to exercise that power.

"What, therefore, does this tax on foreign publications amount to? It has simply resolved itself into a revenue tax, and in view of the enormous work involved in keeping track in the Customs department of the multitude of publications which come into this country the inference is that the cost of collecting this tax will exceed the revenue from it. Therefore, we can count it out even as a revenue tax.

"That being so, it resolves itself into one more nuisance tax piled on the long-suffering taxpayers of this country."

Million Dollar News Print Market May Be Lost

Canada's sales of news print to New Zealand, according to Ottawa statistics, amounted in value to nearly one and a half million dollars in 1929. In the calendar year 1930 they were valued at over a million and a quarter dollars and during the first nine months of the current year they are valued at $662,519. This trade may now be lost to Canada as a result of the decision of the New Zealand Newspaper Proprietors' Association recommending its members to place "at least two-thirds" of their news print orders with English manufacturers during the coming twelve months.

How the trade has been divided is shown in the 1931 Official Year Book of New Zealand, which states that in 1929 the total imports of news print were valued at £377,755. Of this £54,301 came from the United Kingdom; £320,885 from "other British countries," which

(Continued on page 26)

Demand for Paper More Active In Philadelphia

Manufacturers, Distributors and Converters Experience Improved Request, Although Bulk of Business Consists of Hand to Mouth Orders for Immediate Needs, Despite Attractive Prices Prevailing—Fine Paper Situation Improves

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., November 2, 1931.—The past week was a more encouraging one for all branches of the local paper market. Growing business and a more optimistic attitude followed as consumers of paper were freer in purchasing from manufacturer, distributor and converter. While the pick-up was generalized, orders continue to be of hand to mouth type, despite the attractive prices that now prevail. There was another reduction in southern kraft last week, making the prices the lowest of the post war period. Wrapping papers were in broader demand, while bags and containers improved as holiday orders were given consideration. Distributors of paper in wholesale quantities and mill agents report orders growing but of smaller volume than a month or so ago. There has been livelier buying of fine papers, such as announcement stocks and bulky book grades. Paper stocks are draggy and of low prices, with all available supplies of the better grades in demand, but few in accumulation, so that the market is more restricted owing to sparsity of supplies. Rags, likewise, are dull.

Proposed TAPPI Section Meets November 12

When the proposed Delaware Valley Section of the Technical Association of the American Pulp and Paper Industry opens the first of its meetings at the Engineers Club, in Philadelphia, on November 12, there will be a discussion of pulp testing. The first papers will be "Difficulties of the paper maker in trying to get a uniform pulp or pulp according to specifications and what test can be made to actually get the desired results" by Harvey C. Cannon, of the Container Corporation of America, Philadelphia plant. Following his talk there will be a comment on the Cannon paper by H. H. Hanson of the W. C. Hamilton Sons Company, Miquon, Pa., Dr. H. C. Schwalbe, of the Dill and Collins Paper Company, will also contribute to the discussion. There will also be other discussions by a representative of the Puget Sound Pulp and Paper Company and a representative of Castle & Overton Company, Foreign Pulp Department. Following the reading of papers and talks on domestic and foreign pulps there will be an open forum on any topic that may be brought up by the members.

Wholesale Waste Merchants Hold Indoor-Outing

Novel in type of entertainment and a change from former policies of its annual gathering, the Wholesale Waste Merchants Association of Philadelphia held an indoor-outing and stag party at the Lorraine Hotel last Wednesday. With fifty associates gathering at the festive board there was a banquet and a two-hour vaudeville program confined exclusively to the members, a change from the former policy of inviting outsiders to the yearly festivities. President Thomas A. Kenny, of the International Trading Company, presided and greeted the members, while Secretary William J. McGarity, Sr., head of the Penn Paper and Stock Company, acted as Master of Ceremonies. Clever talent from the trade ranks was shown in the impromptu entertainment of Dominic de Santi, of Alexander De Santi & Son, whose mimicry of the southern darkey in comic strain won loud applause, while the encores that greeted Charles McNichol, of P. Di Santi Company, for his Irish ballads indicated an appreciative audience. There was choral singing interspersed with the professional talent throughout the dinner. The committee on entertainment was William J. McGarity, Sr., Dominic De Santi, and George French, of the Philadelphia offices of Castle and Overton.

Paper and Cordage Men Plan Christmas Party

Plans for a Christmas Party for the Salvation Army and for children were taken up at the monthly meeting of the Paper and Cordage Association of Philadelphia, at the luncheon held at the Adelphia Hotel on Friday. The Christmas Party is to be staged at the Adelphia, December 18, when there will be a Christmas tree, distribution of toys and clothing to the youthful guests of the association and a turkey dinner. Those on the Entertainment Committee who will provide for the Yuletide cheer are Stanleigh Brower, J. L. N. Smythe Company, D. Crimmins, Edwin H. Fitler Company, and William Edkins, Keystone Cordage Company. Following routine business and the planning of the holiday festivity there was an open discussion of business conditions, all members agreeing that a better outlook confronted the mill agents and wholesalers of paper and twine who make up the group. The members passed a resolution expressing faith in the banks, in the civic government, and in business prospects for this winter. President William Edkins presided at the meeting.

Paper Trade Association Holds Special Session

W. S. Wilcox, president of the Philadelphia Paper Trade Association, called a special session of the local merchants at the Penn Athletic Club on Thursday evening for the purpose of bringing the trade together in closer co-operation on association affairs and to promote greater enthusiasm in the meetings and work of the organization. The meeting was attended by representatives of all paper houses linked with the association, who, after partaking of a tasty dinner, heard President Wilcox urge closer co-ordination of the merchants and the work of the association and the welfare of the industry which it promoted. The fine paper division of the association met at the Typothetae, in its first Fall session on Wednesday, when strictly routine matters were taken up.

Gordon H. Friend At Coffee Convention

Vice president and general manager Gordon H. Friend, of Thomas M. Royal & Co., Inc., 7th and Grange streets, attended the Coffee Roasters Convention held in the Palmer House, Chicago, during the week. He was accompanied by D. E. McAllister, specialty sales manager for the Royal company. There was an exhibition of the coffee bags manufactured by the company, one of the largest paper bag manufacturing concerns in the country.

Old Colony Envelope Co. Opens Philadelphia Office

There has been opened in the Commonwealth Building, a Philadelphia office for the Old Colony Envelope Company, manufacturers of envelopes, Westfield, Mass., one of the leading independent concerns of its kind in the country. Arnold T. Wiggin has been making the rounds of the local paper dealers as the Quaker City representative in charge of the Philadelphia office.

When is Paper "Clean Enough?"

Your paper is clean enough only when its buyers know that no other paper of equal grade can be made any cleaner. ¶This means that only Centrifined paper is clean enough. ¶Will buyers get it from your mill? ¶Write, let us put in your hands the facts and figures on Bird Centrifiners.

BIRD MACHINE COMPANY SOUTH WALPOLE, MASSACHUSETTS

manufacturers of the Bird Centrifiner under license from the Centrifugal Engineering & Patents Corp., owners of the Erkenstor Patents.

BIRD CENTRIFINERS

5047

Kimberly-Clark Reports Favorable Earnings

First Nine Months of Year Show Surplus Available for Common Stock, After All Charges, Totals $1,130,041, Equivalent to $2.26 Per Share—Management Estimates Earnings for Full Year Will Exceed Dividend Requirements of $2.50 Per Share

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., November 2, 1931—Earnings of the Kimberly-Clark Corporation, Neenah, Wis., for the first nine months of this year have been exceedingly favorable, according to financial reports recently issued. The surplus available for common stock after all charges, including federal income taxes and preferred dividends, totals $1,130,041. This is the equivalent of $2.26 per share of common stock outstanding. The management estimates that earnings for the full year will be in excess of dividend requirements on the common stock of $2.50 per share. Current assets as of September 30, 1931 were in excess of $9,000,000, against total current liabilities of slightly over $2,000,000, or a ratio of better than 4.4 to one.

Thilmany Mill Improvements

Eighty men are at work at the Thilmany Pulp and Paper Company's mill at Kaukauna, Wis., completing the buildings to be used for the tissue division. The tissue mill at Appleton, Wis., is being dismantled and the machinery moved to Kaukauna. The former turbine room at the sulphate plant is being remodeled and enlarged to provide space for the two paper machines moved from Appleton. A large warehouse is also being constructed of concrete and brick to provide additional storage. Later the crew will be increased to 150 men to make further alterations in readiness for the installation of a new paper machine recently purchased by the company. The machine is being added so the company can use almost its entire output of the pulp mill for its own products. The Permanent Construction Company is doing the construction work.

News of the Industry

The Interlake Division of the Consolidated Water Power and Paper Company, at Appleton, Wis., is now ambitious to round out a record of two full years without a lost time accident. Up to October 1, 1931, the employees had nineteen months to their credit and on February 16, 1932, the record would be two years. During the month of September all four mills of the Consolidated, employing 1,066 men, had a perfect record. The Stevens Point mill has been on a non-accident basis since August 3, 1930, with more than thirteen months to its credit. The Biron mill has now three safe months on record.

The Flambeau Paper Company, Park Falls, Wis., will buy balsam and hemlock plup wood logs from farmers this winter in order to help out their situation. The dry season left the company with a larger stock of wood on hand than usual and little is needed, but farmers have been notified to haul in their logs from the surrounding territory.

Rumors that the branch mill of the Marathon Paper Mills Company at Ashland, Wis., would reduce its crew and cut wages have been denied by B. H. Metternich, mill manager. He declared that operating conditions are still favorable and there was no immediate prospect of curtailing production.

An echo of the bankruptcy sometime ago of the Wisconsin Carton Company, Stevens Point, Wis., is contained in court action attempted by some of the stockholders claiming that seven of the officers and directors violated the Wisconsin securities laws. It contended that part of the money realized from the sale of stock was used to pay $19,000 worth of notes, whereas it was agreed that all of the proceeds were to be placed in a trust fund until the total reached $48,000. Those named in the action are B. C. Koepke, former president, W. E. Kingsbury, L. R. Anderson, J. T. Mader, J. P. Thompson and Gustav Ludwig. These men have entered pleas of not guilty and further proceedings are to be held early in November. The company was started at Stevens Point and after it became defunct the assets were purchased by the Ahdawagam Paper Products Company, Wisconsin Rapids, Wis.

Classes in pulp and paper making and other related subjects have been organized for employees of the Consolidated Water Power and Paper Company, at the mills at Wisconsin Rapids, Stevens Point, Biron and Appleton, Wis. Thus far 125 employees have enrolled. Instruction is given under the auspices of the vocational schools.

Employees of the Wisconsin Rapids mill are also participating in a safety school opened last week. The speaker was Frederick M. Snyder, of New York, who spoke on the topic, "Keeping Ahead of the Headlines." George W. Mead, president of the company, was honorary chairman of the opening session, and J. J. Plzak, safety superintendent, was in charge.

Inquiry by the Attorney General's office of Wisconsin into the purported combinations between the paper box manufacturers in Milwaukee has been resumed. Among those called to testify are Louis Stein and Richard Hallstrom, of the A. George Schulz Company; Walter Carlson, of the Milwaukee Paper Box Company; W. R. Davis, of the American Paper Box Company, and G. Molitor Hormuth, of the Molitor Box Company. Previous hearings revealed the accusations were without foundation but the inquiry was not completed at that time.

Planting of 5,000,000 trees a year on tax delinquent cutover lands in Douglas county will be accomplished by prison labor. A camp is being built to accommodate fifty men who will be transferred from the state penitentiary.

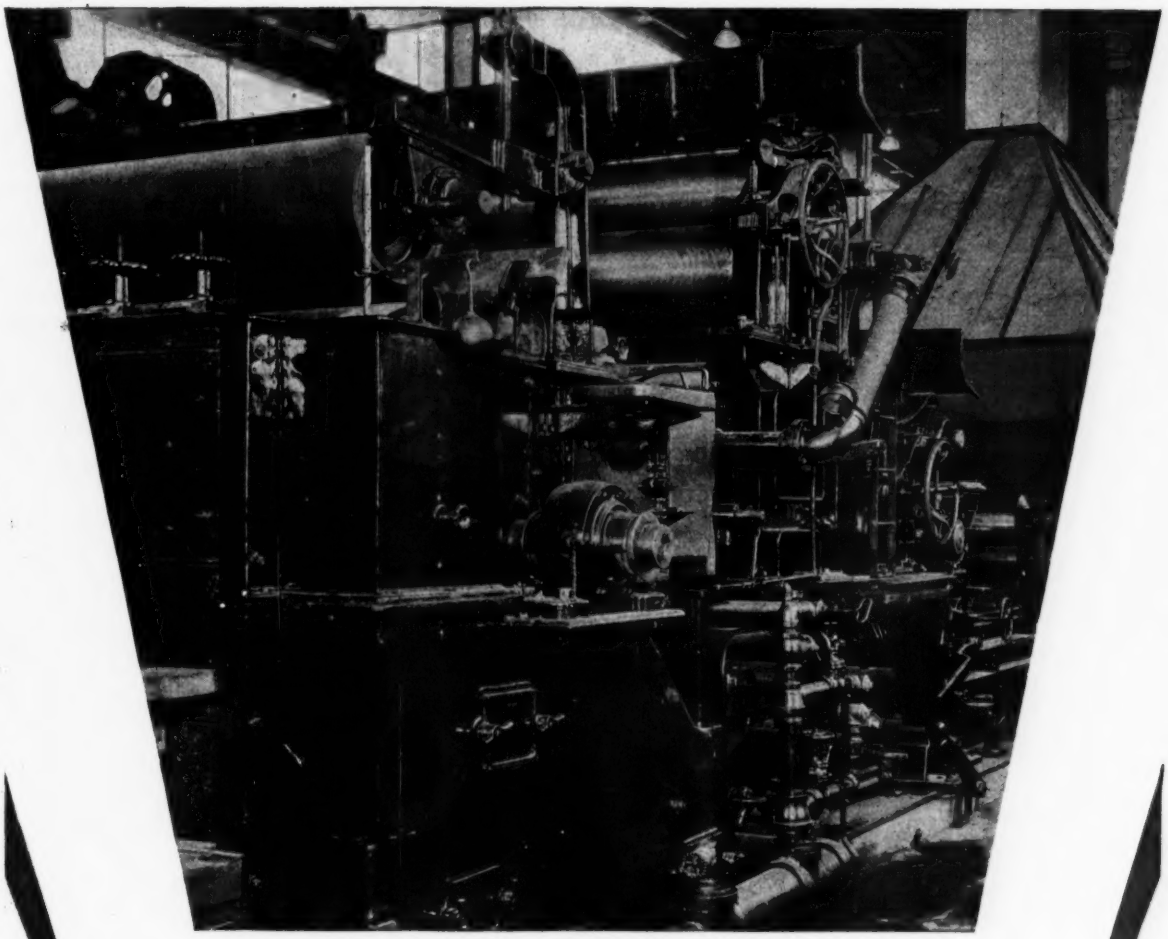
Forty posts of the American Legion in Wisconsin have organized volunteer companies to assist in fighting forest fires in Northern Wisconsin. These will be part of a huge organization now in formation to stop this menace to timber. Adjutant General Ralph M. Immell, acting director of the Wisconsin Conservation Commission, is in charge of this activity.

J. M. Conway, president of the Hoberg Paper and Fibre Company, Green Bay, gave the principal address recently, at a gathering of 900 members of the paper and pulp makers unions. His address praised the work of the American Federation of Labor, and he voiced himself in favor of unemployment insurance.

C. B. Clark, of Neenah, Wis., president of the Riverside Paper Corporation, Appleton, Wis., was honored with reelection as president of the Riverview Country Club. M. A. Wortheimer, president of Thilmany Pulp and Paper Company, Kaukauna, Wis., was named on the board of directors.

Because of completing forty years' service with the Gilbert Paper Company, Menasha, Wis., Henry VanderHyden, an employee, was presented with a gold watch. This is customary with workers achieving this record.

DOWNINGTOWN



FELT MACHINE • • • • • • SUCTION ROLL

Every Felt Machine built by this company for the past 15 years has been equipped with suction rolls, some of these being suction press. A few of the prominent manufacturers having Downingtown Felt Machines are Congoleum-Nairn, Inc., Philip Carey Mfg. Co., Flintkote Company, Barrett Co., and H. F. Watson Co. If you would like some information regarding the benefits obtained from the installation of Downingtown Suction Rolls on felt machines or on machines making practically every kind of paper or board, write us. Our Catalog No. 103 fully describes the roll. The Downingtown Manufacturing Company, Downingtown, Pennsylvania.

Canadian Paper Trade Association Convenes

Distributors of Paper From Various Sections of British Dominion Attend Yearly Sessions Held In Royal York Hotel, Toronto, October 27 and 28 — J. H. Hooke, Retiring President, Reviews Prevailing Conditions In Paper Industry

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., November 2, 1931—Organized in 1918 and meeting for the first time in Toronto since 1924, the Canadian Paper Trade Association held its yearly sessions in the Royal York Hotel on October 27 and 28. The annual meeting, which was presided over by the past president, J. H. Hooke, was representative of wholesale paper merchants from all parts of Canada exclusive of British Columbia, and the deliberations took the form of a general conference on organization, trade conditions and economic distribution of paper and paper products. Preliminary to this there were reports from the four territorial sections into which the association is divided, all of which were of an optimistic character. The tone of the meetings all through indicates a belief on the part of the paper jobbers that the worst of the depression was over, that a return to normal conditions was not far around the corner and that while the paper houses had undoubtedly passed through a trying period, it had been less hard hit than most industrial lines. This was indicated in a review of conditions submitted in an address by J. H. Hooke, the retiring president.

Mill Representatives Entertained

On Tuesday a feature of the day's proceedings was the presence of many of the paper manufacturers and several officials who were entertained by the distributors at luncheon, when E. D. McPhee, of the York Knitting Mills, Toronto, spoke on "Industrial Relations." Among those present at the luncheon were: G. W. Pauline, of Alliance Paper Mills; N. E. Wainwright, Don Valley Mills; George H. Davidson, W. Aird, Howard Smith, Jr., R. B. Hall and Harold Crabtree, of the Howard Smith Paper Mills; L. E. Fleck, Alliance Paper Mills; A. J. Jewitt, Provincial Paper, Ltd.; Jean Rolland and L. Lemieux, of the Rolland Paper Company; K. S. Maclaughlin, Fraser Company; T. V. Caesar and John F. Taylor, of the E. B. Eddy Company; John Martin, Winnipeg; A. H. Chamberlain, secretary National Paper Trade Association, New York City. Another pleasant social feature was the luncheon tendered to the visiting members by the Ontario paper distributors, at which Alexander Whyte presided and brief addresses were given by John Martin, of Winnipeg; L. P. Turgeon, Quebec; E. S. Munroe, of Wilson-Munro Company, Toronto; H. F. E. Kent, of the W. J. Gage Company, Toronto; Harold Crabtree, of the Howard Smith Paper Mills, and C. A. Schofield, St. John, N. B.

The following officers were elected: Honorary president, C. H. McFarlane, Montreal; president, E. T. Reynolds, Montreal; vice-president, George H. Allan, Toronto; treasurer, T. J. McCabe, Toronto; honorary secretary, N. L. Martin, Toronto; secretary. Ivan Moffitt, Toronto.

May Make Paper From Muskeg

The eventual manufacture of wall paper, litter, coarse paper, fuel, and even artificial silk, from the extensive peat beds and muskegs found in all parts of Canada, is foreshadowed by the successful inauguration of the new Carlson Building Company plant at Edmonton, where the conversion of muskeg into wall-board has just been commenced. Experiments are already being conducted with a view to determining the cellulose content of various deposits, particularly those of the Hudson Bay Railway region, as on this factor depends its suitability as raw material for paper stock, coarse wrapping paper and other similar products. In the Province of New Brunswick there are over 40,000,000 tons of muskeg which is suitable for litter. In practically all the other provinces peat and muskeg are found in commercial quantities and in form suitable for manufacture of fuel litter and mull. In Ontario there are deposits near Welland, and in the vicinity of Komoka, and between Toronto and North Bay. East of Winnipeg there are further bogs along the line of the Canadian National Railways.

Pulp Mill Reopened

The pulp mill at Frankford, Ont., of the Canadian Paperboard Co., has recently been reopened and operations are now in full swing, according to official advices. This should be reflected beneficially in the earnings of the company. Both wood and power are being obtained at low rates, and it is hoped that net profits, with this additional source of revenue, will go a long way toward taking care of the bond interest requirements. In addition to the direct benefits which are likely to be felt by the paper board industry as the result of this expansion, the outlook is considerably improved for the Quinte and Trent Valley Power Company, a subsidiary, which provides the parent company with power.

Notes of the Trade

Congratulations of many friends in the paper and box industries in Toronto were extended recently to Forbes Duncan Allen, of the sales department of the Dominion Paper Box Company, on the occasion of his marriage to Miss May A. Pierce, a popular young lady of Toronto.

J. G. McCaw, crown timber agent of the Sudbury district, placed the pulp shipments of this winter to not exceed 8,000 cords, the major part of which is cut and ready for transport, while the cut of one company alone in years previous to last was 50,000 cords and the total traffic was estimated at 400,000 cords. Mr. McCaw states that small shipments are being made from Northern Ontario points to United States mills.

The contract for 65,000 cords of pulpwood for the sulphite pulp mills of the Fort William plant of the Great Lakes Paper Company, has been let to the Pigeon Timber Company, Port Arthur, Ont. In filling this contract employment will be given to six or eight hundred men.

R. G. Dinsmore, head of the Bethune Pulp and Lumber Company, Ltd., Huntsville, Ont., has returned to his office after being absent through illness since July last.

Directors of the Alliance Paper Mills, Ltd., met in Toronto a few days ago and transacted routine business.

The No. 1 machine at the Port Arthur mill of Provincial Paper, Ltd., was shut down for a week in order to allow for the installation of a new Cameron winder and a Voith inlet. The company also recently installed a new winder in their mills at Mille Roches.

"NEARLY STRETCHLESS"

You'll hear it time and time again—the COMPASS Endless Belt stops power losses from stretch

"The most nearly stretchless transmission belt made" is no idle claim for the Goodyear COMPASS Cord Endless Belt.

It is what operators say who have applied this unique Goodyear product in the last two years to practically every type of machine operation in which endless belting is used.

Endless cords laid side by side carry the tensions of the drive.

A tough fabric envelope completely covers the cords and protects the cords from wear against pulleys and idlers.

The cords carry the load—the envelope guards the cords.

You should know how other men in your line of work are making savings on the new belting recently developed by Goodyear.

The G. T. M.—Goodyear Technical Man—specifies Goodyear Mechanical Rubber Goods accurately to your own requirements. Especially today, you should have his expert help.

Just write to Goodyear, Akron, Ohio, or Los Angeles, California, and ask the G. T. M. to call.

THE GREATEST NAME IN RUBBER

GOODYEAR

BELTS • MOLDED GOODS • HOSE • PACKING

Chicago Paper Market Conditions Irregular

Demand for News Print Paper Disappointing, with Volume of Advertising Below Normal for Time of Year—Various Grades of Fine Paper in Better Request—Wrapping Paper Situation Continues Unsatisfactory—Paper Board Market Listless

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., November 2, 1931—There seems to be a feeling among Chicago paper representatives that the present is about "normal times" and the best thing to do is to forget any other standard. The kraft situation is, naturally enough, the bluest spot of the Chicago picture at the present time. Busting the prices of the higher grades of kraft wide open had, of course, an unsettling effect here. Lower grades of kraft were not much, if any, affected because of their sharp drop early in the year. The best philospohy expressed is that in which executives say "if it had to come, it had to come, so we might as well get it over with."

News print reports continue rather disappointing as advertising lineage in daily papers has failed to make much progress this Fall. Unseasonably warm weather, hereabouts, has prevented any great extention of retail trade activity and this, of course, has affected advertising lineage. Fine papers showed a change for the better during the week, according to reports, and those who have been out on the selling line say that the number of inquiries resulting in actual sales form a basis for encouragement. Ground woods are spotty. Book and cover papers remain virtually unchanged over last week. The board market continued dull. There is a reason for cheer in the attitude of paper merchants here who feel that they are no worse off than other industries and that, by proper economies, they can see the "thing through." Waste papers continued dull with krafts selling at lower prices in sympathy with the general market.

Salesmen's Association Activities

A varied and useful program is being carried out by the Middle West Division of the Salesmen's Association of the Paper Industry. On October 12 S. L. Willson, president of the American Paper and Pulp Association, gave an informal talk in which he stressed the obligations of salesmen and sales executives in relation to the stock holders, employees, persons to whom they sell, persons from whom they buy and their general obligations to the paper industry as a whole. Mr. Willson said that conditions today would be much better in the industry if executives took due notice of their obligations to industry as a whole. Mr. Willson also explained in detail the plan for stabilizing production on a basis even with consumption. The plan, he said, was to apply not only to the paper industry but to all industries as well and that, in effect, it would not only stabilize production but also have a great deal to do with the equalization of unemployment.

On October 19, R. S. Kellogg, secretary of the News Print Service Bureau, addressed the regular Monday meeting of the Middle West Division and presented some very interesting data on newspaper advertising. The figures on the changing size of both daily and Sunday editions, while not exactly optimistic, permitted the salesmen present to note the trend of conditions and helped to convince them that we may be, even now, in normal times as compared to the abnormal times around 1929.

On October 26 J. F. O'Keefe, secretary of the Chicago Credit Men's Association, presented a cross section of the credit situation and explained the work of his organization. On November 2 E. J. Bryan, traffic manager of the Wisconsin Paper Mills, will talk at the Monday luncheon on the recent decision of the Interstate Commerce Commission affecting the railroads. His discussion will also cover the general effects of the decision handed down.

On Friday evening, November 6, the division will celebrate its golfing victories with a dinner held in the salon on the seventh floor of the Hamilton Club building. This celebration meeting will take the place of the regular Monday, November 9 event. The Harbison Trophy, President's Trophy and *American Paper Merchant* trophy will be presented along with other tokens. Moving pictures of the golf event at Westmoreland in July will be shown to what is certain to be a very interested audience. A big crowd is expected to attend this event commemorating permanent possession of the valued inter-division golf prize.

There are three or four exceptionally fine productions in the latest Westvaco Inspirations for Printers, which happens to be Number 68. The Chicago office of the West Virginia Pulp and Paper Company at 35 East Wacker Drive calls attention to the fine story, "The Gleam of Metal," which sets forth the development of the use of gold and silver in modern advertising, of its uses, and some good suggestions for its use. Interesting to everybody are the comparisons between classic and modern figures and fancies and the illustrations from an antique vase painting are no whit less amusing than those used by some of our present day advertisers. Then there is a bit about "Delicacy of Line" and some unusually beautiful four color work in connection with the story of "Realism gets an Added Force." An idea of what photography can do is shown in ten masterful photographs displayed over a caption "The Scope of Modern Photography".

"Oxford Papers and Big Business" is the title of the Oxford Paper series, number 12, sent out by Bermingham & Prosser, Chicago, representatives of the Oxford Paper Company, manufacturers. Effective black and white illustration is tied up with copy that says "The problem of big business is to make—and keep—friends . . . the right kind of advertising will make friends, will bring prosperity to the advertiser and will do this at a cost less than will any other way." The direct mail piece is printed on Oxford Super.

The Container Corporation of American in the third quarter of 1931 had a net loss of $133,019 after interest, depreciation and all other charges, as against a net profit of $99,829 or 18 cents a share on the class A stock, in the like period of the preceding year. For the nine months ended September 10, 1931, the net loss totalled $301,621 as against a net profit of $416,012 or 83 cents a share on the class A stock in the same period during 1930.

"The Dog with Mistaken Ideas on Grandeur", is the title of Basic Fables Number 6, the series on Hollingsworth Basic Bond, issued by Hollingsworth and Whitney through Dwight Brothers Paper Company and the Whitaker Paper Company, both of Chicago. Using the "all is not gold that glistens" theme the copy utilizes a splendid chance to talk about [illegible] and quality and true economy in paper buying.

Air Conditioning For Container Plants

RELIEF FROM MANY PRODUCTION TROUBLES DUE TO SUDDEN CHANGES IN THE RELATIVE HUMIDITY!

Carton and folding box plants are profiting by the universal industrial application of air conditioning to attain production that is more profitable. Like other industries, they recognize the importance of utilizing the method of air conditioning specifically adaptable to their own particular problems.

The four major problems resulting from variations in atmospheric conditions have been (1) Lack of good folding properties (2) Difficulty in obtaining register (3) Curling (4) Static Electricity. By means of a correctly designed conditioning system, the more progressive plants in the industry have already completely eliminated these troubles with their accompanying expense for damage to quality of product, waste of time and materials.

Under present conditions, no container or carton plant can afford to ignore the economies obtainable by proper conditioning. Ross engineers, with their long experience in paper mill problems are best qualified to design the most efficient system for plants in this field—a system that positively controls both temperature and humidity. This inexpensive system is now operating in prominent plants throughout the industry. Its performance has been proved.

Let Us Acquaint You With the Kind Of Results That Are Being Secured

J. O. ROSS ENGINEERING CORPORATION

201 North Wells Street CHICAGO

Main Office—122 E. 42nd Street NEW YORK

311 Lewis Building PORTLAND, ORE.

ROSS ENGINEERING OF CANADA, LIMITED
NEW BIRKS BLDG., MONTREAL

ROSS SYSTEMS
HEATING—VENTILATING—DRYING

Boston Paper Demand Slightly Improved

Inquiries for Writings Are Numerous and Some Active Business Is Developing from These Inquiries—Paper Stock Market in General Has Not Shown Improvement Hoped For—Paper Concerns Exhibit at Fifth Annual Utility Products Exposition

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., November 2, 1931—The wholesale paper market in Boston and vicinity has been holding fairly steady during the last fortnight, showing a slight improvement, as a whole. Printers are preparing for new business, making up dummies for their prospects. Inquiries for writing paper are rather active and numerous, and some orders are developing from these inquiries. In the wrapping paper division, while some gains have been made, the volume of sales is hardly better than fair. No. 2 kraft and Southern kraft have shown a downward tendency. Each is now quoted at a maximum figure of .03 (No. 2, f.o.b. mill, and Southern, f.o.b. Boston). Some are quoting a range of 2¾ @ .03 for each of these grades.

With an improvement in the candy industry, there is more activity in fancy papers in the candy coverings. From makers of boxes for millinery and dry goods lines there are more orders and encouragement.

With a good number of the box makers more active, there is a correspondingly greater volume of orders for box board. Values of board remain at the same levels.

The paper stock market in general has not shown the improvement hoped for, although in a few lines there has been more interest recently than for some time. No. 1 mixed paper and old newspapers have been holding steady, with values practically at the same levels. Kraft No. 1 is off a few points on the high side, being quoted at 1.00 @ 1.10, compared with a previous range of 1.00 @ 1.15. There has been a downward tendency in corrugated boxes. One of the prominent mills of the vicinity buying paper stock has gone from a five-day week basis to four days.

Paper Concerns Make Exhibits

Exhibits by several members of the paper and kindred industries were shown at the Fifth Annual Quality Products and Public Service Exposition, under the auspices of the Associated Industries of Massachusetts at the Copley-Plaza Hotel October 19, 20 and 21.

The Cambridge Paper Box Company, Cambridge, made use of tubes and screens in Reynolds Metafoil silver paper in their exhibit. They showed several of their products, including a display box, a Telechron box, the Lowney boxes for Candy Brands, Inc., and the Perry-Shepard boxes. The display was in charge of William H. Perry, J. V. R. Shepard, A. F. Moberger, J. L. Kelly, T. Wallace Scott and Arthur MacDonald.

The booth of the Falulah Paper Company, Fitchburg, featured the new products added to the regular Falpaco line. A map of the United States showed the Coast-to-Coast distribution of kraft-in-middle, ultra yellow, ivory dull coated, black dull coated, white dull coated and ultra blue, used for coated cardboards for car cards, and window and store displays. These new items have been accepted by printers and advertisers for their velvety surfaces and non-reflecting qualities. The display was in charge of J. A. Moses.

The Forbes Lithograph Manufacturing Company, Chelsea, showed samples of work, featuring that for New England customers and some of the big national advertisers. The exhibit was in charge of Edward F. Payne.

The display of the Samson Cordage Works, Boston, showed ropes and twines made by this company.

The Strathmore Paper Company, West Springfield, included in its exhibit new sample books of Strathmore Parchment, designed by the late William Edwin Rudge, one of the last pieces of work he did before he died; Baypath Bond, with seven new colors; Wayside Text, with colors, and Offset Portfolio. Materials used in paper making were displayed, including Jordan stock, blue coloring matter, half-stock and white rags. The display was in charge of Robert B. Clark, Jr.

A feature of the exhibit of Tileston & Hollingsworth Company, a concern which has the only paper mill in Boston, was a demonstration of the "Method of Making Paper in Our Mill in 1801." The company showed "Papers of Old-Fashioned Quality" in a setting appropriate to the olden time, including the youthful Crinoline Girls in person. Molds made in Maidstone, England, brought from there by Mr. Howland during a recent trip were on display. A prominently placed sentence advised "Put Your Fall Advertising Over the Top with Milton Cover and Text." Crinoline Cover was also shown. The exhibit was under charge of A. V. Howland and Howard Wallingford.

In another part of the room was an exhibit of Tileston & Hollingsworth, "Papermakers for 130 Years," showing the original drawings by Thirteen New England Printers to produce the 1931 Calendar of the company.

Notes of the Trade

Horace Binney Sargent, a member of the firm of E. Butterworth & Co., paper stock dealers, and Mrs. Sargent observed the 30th anniversary of their marriage, October 30, at their residence in Wollaston, entertaining a family party with 24 present. Five of their eight children are living. Mr. and Mrs. Sargent have the best wishes of their large number of friends for many more years of happy married life.

The Baird & Bartlett Company is sending out sample books showing a line of fancy silver papers, called Sylvia Print, for box covering purposes.

The Albemarle Paper Manufacturing Company, Richmond, Va., who have a New England office in this city, are staging a Christmas Sales Contest, from October 19 to December 18. The contest, open to salesmen of paper merchants, selling Albemarle Blottings, offers $2,000 in cash prizes, ranging from $250 to $10. There are 41 prizes, but in case of a tie, duplicate prizes will be awarded. The sales are confined to the following mill brands or equivalent grades: World, Reliance, Verigood, Vienna Moire, Windsor Enameled, Albemarle Halftone, Duplex Offset and Albemarle Enameled.

The Hammermill Paper Co., among whose representatives are Carter, Rice & Co. Corporation, is offering a variety of prizes in a sales contest, which are awarded according to the number of points determined by the number of pounds sold. The sales include all the standard brands of the company and some of its unadvertised lines and contract business, credit for which is determined on a slightly different basis from that for the regular lines.

(*Continued on page 56*)

In A Recent

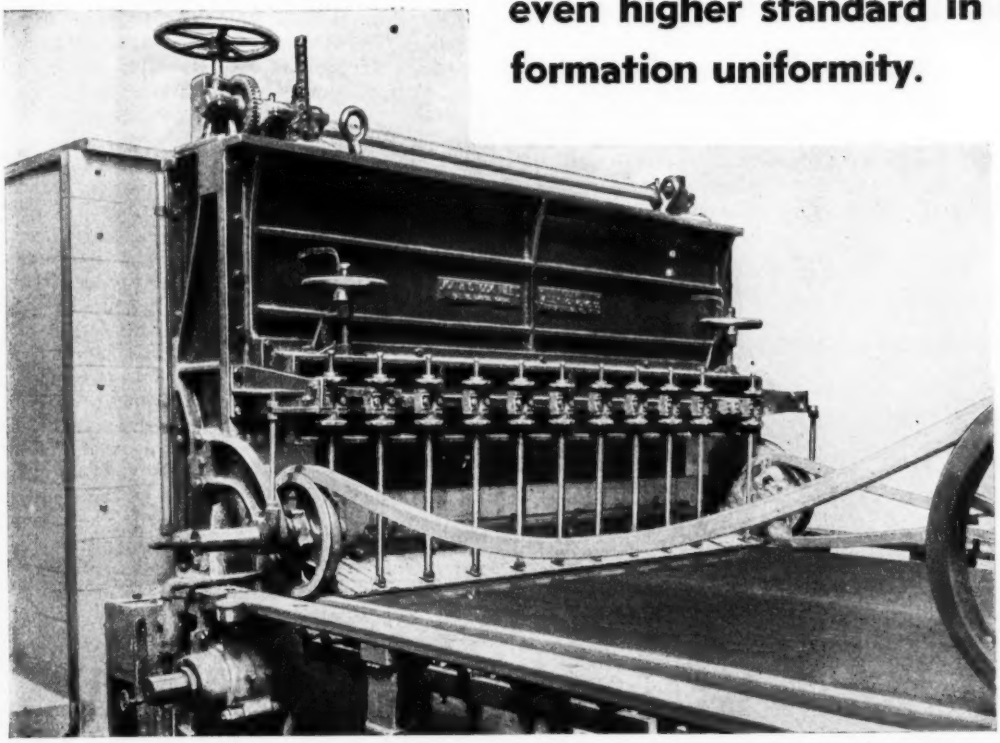
Superintendent's Meeting—

IT was brought out that "the Voith High Pressure Stock Inlet is the best piece of equipment of its kind on the market at the present time."

One of the Voith's principle features is the new micrometer adjustment which has effected an even higher standard in its sheet formation uniformity.

VALLEY
Equipment for Paper and Pulp Mills

Plant: Appleton, Wisconsin
New York Office: 350 Madison Ave.
Canadian Representatives: Pulp & Paper Mill Accessories, Ltd., Montreal, Canada



Over 300 Inlets Installed and in use.

Beaters • Jordans • Voith and Van de Carr Stock Inlets • Pumps • Deckers
Screw Presses • Laboratory Equipment • Plug Valves • Stock Regulator

The Chicago Century of Progress

By Allen Abrams[1]

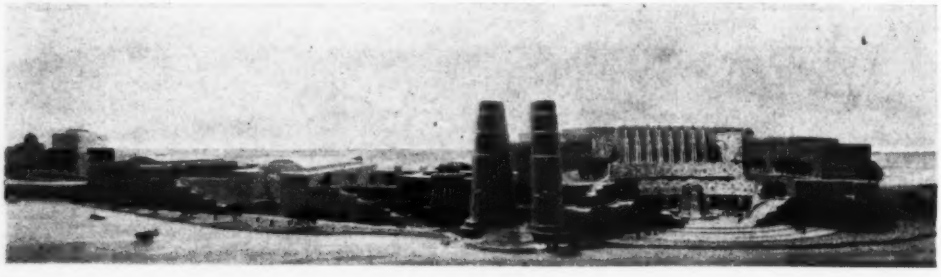
In December, 1929, the National Research Council Science Advisory Committee requested the Technical Association of the Pulp and Paper Industry to appoint a committee to cooperate in preparing plans for a pulp and paper exhibit at the 1933 Chicago Century of Progress. The following committee was selected: W. G. MacNaughton, R. A. Hayward, H. G. Ingraham, K. T. King, and Allen Abrams, Chairman.

Plans for the Paper Industry

This committee had two meetings early in 1930—one in Chicago at the Centennial headquarters and another one in New York city. At these meetings the project was thoroughly discussed and the various ideas were gathered together so that the proposition could be lined up in reasonably definite form. Officials of the Century of Progress have cooperated actively with the committee in working out the plans for the pulp and paper industry.

One of the primary purposes of the Chicago Centennial is to show the relation which exists today between science and industry. Consequently the original plans provided for an exhibit which would show materials, machinery, methods, history, and statistics pertaining to the pulp and paper industry. The blueprint prepared at that time provided for a complete building, or section in a building, and so arranged that people could readily view the individual exhibits separately or the whole exhibit in systematic form. The raw fibrous materials were to include a number of small trees, rags, waste paper, bagasse, straw, flax, and the like. Other raw materials were also to be displayed with legends indicating their relation to the industry.

The central exhibit was to be a dynamic one showing the manufacture of handmade paper and also the production of paper on a small semi-commercial machine. In other corridors it was proposed to bring out the contributions of chemistry and physics to pulp and paper manufacture, interesting data on the history of paper making, flow charts of pulp and paper manufacture, and control instruments used in the industry. Another exhibit was to illustrate the use requirements of various papers and still another room was to have a display of the different grades of paper.



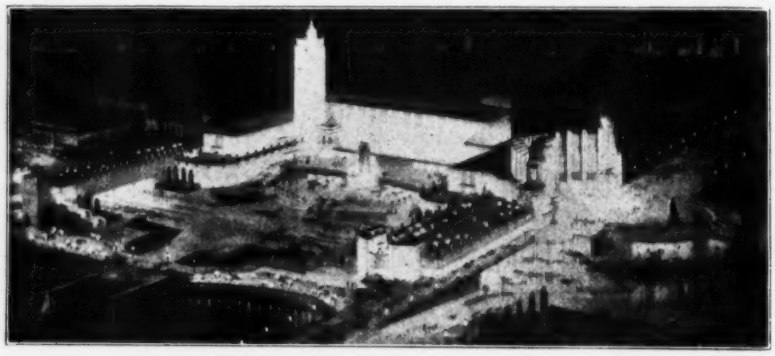
ELECTRICAL GROUP

[1] Technical director, Marathon Paper Mills, Rothchild, Wis.; chairman, Chicago Century of Progress Committee.

In order that the relation of this exhibit to the exposition as a whole may be more fully appreciated, the following facts regarding the Century of Progress should be brought out:

To Celebrate Chicago's Centenary

This exposition was conceived to celebrate the centenary of Chicago's organization as a municipality. After considerable investigation it was decided to have the Exposition depict "the contributions of pure and applied science to industrial development during the last 100 years," as the main theme. General Charles G. Dawes was made chairman of the finance committee and Rufus C. Dawes president of the board of trustees. The Board consists of about eighty members, including such prominent men as E. N. Hurley, Samuel Insull, Col. R. R. McCormick, J. J. Mitchell Jr., Potter Palmer, Julius Rosenwald, F. W. Sargent, Dr. Walter Dill Scott, Col. A. A. Sprague, E. F. Swift, Matthew Woll, and William Wrigley Jr.



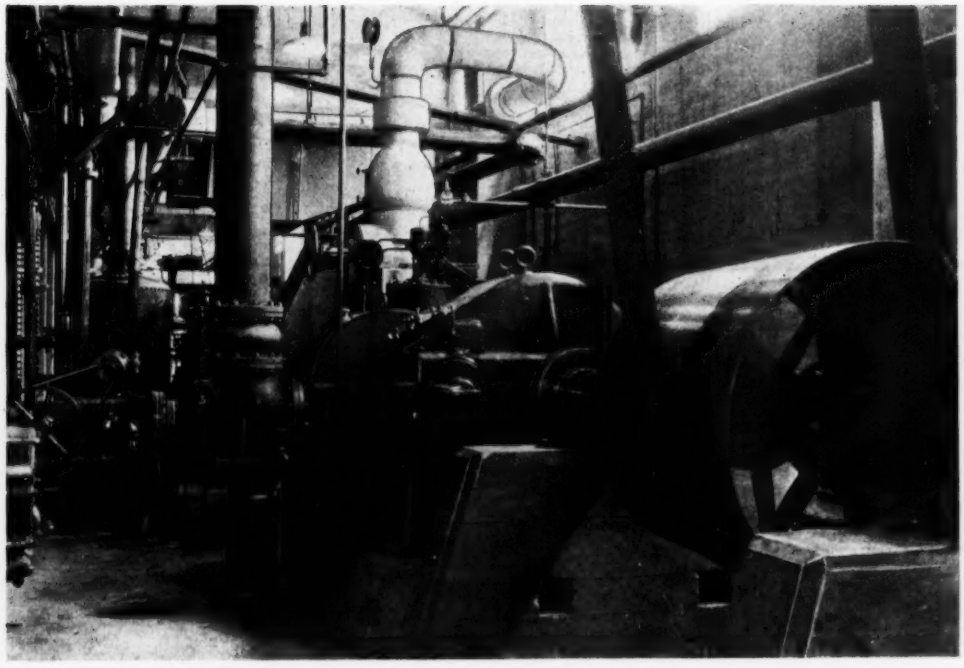
HALL OF SCIENCE

In order to have a plan for the presentation of science contributions to industrial development, the assistance of the National Research Council was requested. As a result the N. R. C. Science Advisory Committee, under the leadership of Dr. Frank B. Jewett, President of the Bell Telephone Laboratories, was made up, to consist of forty members among the leading scientific, technical, and engineering societies and universities of the country. This committee and its subcommittees have had numerous meetings and have laid out careful plans for the correlation of science and industry at the Exposition.

Present Progress

Up to the present time these arrangements have resulted in the erection of the commodious administration building, the unique Travel and Transport building, and an exact replica of old Fort Dearborn. Work has already been started on the Hall of Science and the Electrical

TERRY
Paper Machine Drive



One of two 600 H. P. Terry Paper Machine Drives installed in a recently completed Southern Paper Mill.

YOU CAN OBTAIN ANY DESIRED SPEED THROUGHOUT A 10 to 1 RANGE

No matter whether you require high paper speeds to secure greater production or low speeds for heavy stock, the Terry drive will give them. All speed changes are made easily and smoothly — not in steps.

Why not investigate the possibilities of Terry turbine paper machine drive. Any of our District offices will be glad to give you complete information on a drive to meet your requirements. No obligation.

The TERRY STEAM TURBINE COMPANY
TERRY SQUARE, HARTFORD, CONN.
Steam Turbines - Gears - Shaft Couplings

T-1087

group. As the exposition is to reach for several miles along the shores of Lake Michigan the setting for the various buildings will be unusually beautiful.

Among the fifty, or more, leading corporations and companies which have already signed for space in the Century of Progress are General Motors, who are erecting their own building, General Electric Company, Westinghouse Electric Company, Cord Corporation, Pullman Company, Pennsylvania R. R., Baltimore & Ohio R. R., Standard Oil Company of Indiana, American Telephone & Telegraph, International Telephone and Telegraph Company, Western Union Telegraph Company, Radio Corporation of America, Chicago & Northwestern R. R., Illinois Central R. R., and Studebaker Corporation. Thirty-one states have already expressed favorable interest in the Exposition and several have officially approved participation. The original plan for the States Building provided space for thirty-two states but present commitments have made it advisable to raise this number to allow for forty-one states. The following foreign countries have officially approved participation; France, Japan, China, Greece, Lithuania, Gautemala, Ecuador, and Honduras; and many other countries have appointed commissions to investigate the Centennial.

As regards the finances of the Exposition, General C. G. Dawes made public his report as chairman of the finance committee in July, 1931.

In brief he said: "Of the $10,000,000 bonds of A Century of Progress, secured by a 40% lien on the gate receipts, $6,555,000 have been sold without individual or corporation guarantee. The remaining $3,445,000 are secured by individual and corporation guarantees. The said guarantees amount in the aggregate to $5,571,000, in addition to the lien on gate receipts. Of these I have sold on this trip something over $1,000,000, leaving about $2,400,000 of guaranteed bonds to be sold as needed during the latter part of next year. Owing to our contracts for sale of exhibit space, which have been made, much of which is being paid for in advance to save discount for cash, it will probably not be necessary in order to complete the exposition to make any additional solicitation of funds from the public. We have had available of its own funds for this exposition at this very early date, approximately within $1,500,000 of the amount which was available for the Chicago World's Fair of 1893 until the opening of its gates. The business organization has operated from the beginning under a strict executive control of expenditure and budget system, and the material reduction in present building costs due to general conditions has resulted in the letting of building contracts much below the original estimates of cost."

The future of the centennial therefore seems definitely assured and Chicago is making elaborate plans for the crowds which are expected in 1933. No exposition has ever been as far advanced before the opening date as has this centennial, and the exposition authorities have advised that preference in space will naturally be given to those who make their arrangements first. It is estimated that the attendance from June 1933 to November 1933 will be between 200,000 and 400,000 people daily.

Paper Industry's Participation

The participation of the paper and pulp industry may be in one of two ways. Space may be secured for the whole group in the pavilion of a building such that the display will consist of scientific and industrial exhibits together with the commercial exhibits of various mills. This space will be sold at a rental of approximately $5 per square foot gross floor space to cover the full period of the Exposition. Payments are to be made in equal amounts 20 days after the allotment of space, on September 1, 1932, on February 1, 1933, and the final payment on the opening day of the Exposition. Liberal discounts are allowed for payment in advance. At least twenty mills are required in order to secure a separate pavilion for the industry. However, such an arrangement will permit of an interesting display which will grow in importance with an increasing number of participants.

The other method will be for individual mills to take space in exhibit buildings at a rental rate of $10 per square foot of net exhibit area but with no assurance that there will be any group paper display. Such an arrangement will not do justice to the industry as a whole but will give the mill or specialized group its own representation.

As this committee was formed only in an advisory capacity to act for the industry in suggesting a plan of participation, it has completed and presented to the American Paper and Pulp Association the information required. If sufficient mills or groups of mills wish to have a part in the Exposition, they should immediately get in touch with the A. P. P. A. headquarters since definite commitments should be made through that organization. This committee is, however, prepared and willing to assist in any way further to make adequate and united participation possible.

TAX ON PUBLICATIONS FAILS

(Continued from page 13)

means almost exclusively Canada; £236 from the United States; and £2,333 from other foreign countries.

Under another classification it is shown that the total value of paper imported from Canada into New Zealand in 1929 was well over $2,000,000, made up as follows: Printing paper, £336,924; paper other than printing, £98,912; miscellaneous stationery, £17,017; total, £452,853.

Canada's trade with New Zealand has been thoroughly disrupted by Canada's action in shutting out New Zealand butter by a prohibitive duty, and something like a tariff war now prevails between the two countries. However, both sides have expressed a wish to negotiate a new treaty, and this will be undertaken after the forthcoming general election in New Zealand.

From Vancouver it is announced that the principal Canadian companies to suffer by the proposed action of the New Zealand newspaper proprietors are Pacific Mills, Canadian subsidiary of Crown-Zellerbach Corporation, and Powell River Company, which has built up a large Australasian business through its connections with Carmichael & Co., largest distributors of news print in Australia and New Zealand. They have regarded New Zealand business as steady and well worth while and regret its loss, even though it may be only temporary.

Meanwhile the coast mills are busy developing markets elsewhere. The Orient is being intensively canvassed, the western states are buying more British Columbia paper than ever before, and British Columbia pulp is actually being sold in Northern Europe in competition with Swedish and German pulp.

Agency for International Fiber Board

International Fibre Board, Ltd., subsidiary of International Paper Company, has become sales agent for the building blanket manufactured by the Riverbank Manufacturing Company, New Glasgow, N. S. International Fibre has been given the exclusive right by the Riverbank Manufacturing Company to sell the blanket in Canada.

CONSTRUCTION NEWS

A Summary of Vital Facts Regarding Construction, Finances and Operations of Paper Mills

Construction News

Dallas, Tex.—Fleming & Sons, Inc., operating the Oak Cliff Paper Mills, Inc., has perfected arrangements for the establishment of a new local plant for the manufacture of paper boxes and containers. The new factory will be located at 4100 Commerce street, where it will occupy a total of about 25,000 square feet of floor space. Operations are scheduled to begin at an early date. The plant equipment will include eight box-making machines and auxiliary apparatus, as well as two presses, and will represent an investment of close to $70,000. The factory will specialize in the production of egg cartons, egg case fillers, cardboard boxes and containers, folding paper boxes, etc., and will give employment to an initial working force of about 30 persons. It will have a rating of 240,000 box units daily. Earl Brown will be superintendent at the plant.

Savannah, Ga.—Equipment purchases will be made at once, it is said, for the proposed semi-commercial paper and pulp mill to be established at Savannah by the Georgia State Department of Forestry and Geological Development, Capitol Building, Atlanta, and the Georgia Forestry Association, Atlanta, T. Guy Woolford, president, to determine the merits of Georgia slash pine for raw material supply. As previously reported in these columns, a fund of $70,000 is available for the project. C. H. Herty, 101 Park avenue, New York, will act as engineer for the plant, and equipment purchases will be made through that office. Work on the mill is scheduled to begin soon.

Syracuse, N. Y.—Delavan Corrugated Box Company, Inc., East Hiawatha Boulevard, manufacturer of corrugated paper boxes and containers, is considering the early rebuilding of portion of plant, including storage and distributing unit, recently destroyed by fire with loss of more than $120,000, including equipment and stock. Reconstruction is expected to cost close to a like sum.

High Point, N. C.—The Industrial Lithographic Company, 1449 37th street, Brooklyn, N. Y., manufacturer of paper products, boxes, etc., is reported planning the establishment of a storage and distributing building at High Point, for service to hosiery and textile mills in the South. It is proposed to have the unit ready for service at an early date.

Port Huron, Mich.—The Dunn Sulphite Paper Company, Port Huron, has taken out a building permit for proposed new one-story addition to mill, previously referred to in these columns. It is reported to cost about $15,000, instead of a larger amount reported in former reference.

Brooklyn, N. Y.—The Empire Book Match Company, 184-86 North Eighth street, operating a paper converting and match works, is planning early rebuilding of portion of factory recently destroyed by fire, with loss reported at close to $50,000, which includes the equipment.

Parkersburg, W. Va.—Viscose Company of America, Inc., Marcus Hook, Pa., manufacturer of cellulose products, rayon, etc., has authorized plans for the construction of a new boiler plant at its mill at Parkersburg, to be one-story, reported to cost over $35,000, with equipment. Unit will be equipped to use pulverized fuel. The Ballinger Company, 12th and Chestnut streets, Philadelphia, Pa., is architect and engineer. The company is running on a capacity schedule at the majority of its mills. The plant at Lewistown, Pa., is operating on a 100 per cent basis, giving employment to about 4,000 persons, and will be continued on that schedule for an indefinite period.

Philadelphia, Pa.—The former local plant of the Baeder-Adamson Company, manufacturer of sandpaper and kindred products, and now unoccupied, located at Richmond and Westmoreland streets, was damaged by fire recently, with loss reported over $25,000. The company was acquired a number of months ago by the Minnesota Mining & Manufacturing Company, Forest street, St. Paul, Minn., and is now operated as a unit of that organization.

Muncie, Ind.—The paper mill department of Ball Brothers Company is holding to capacity schedule for the production of container stocks for the shipping of glass fruit jars as manufactured by the parent organization. The jar division has been making record shipments, and this is reflected in heavy output at the paper mill. It is proposed to continue on the present basis giving employment to a full working quota for an indefinite period.

Philadelphia, Pa.—The one-story brick plant of the Container Corporation of America, Inc., Nixon and Canal streets, was recently damaged by fire; an official estimate of loss has not been made, and is reported as slight. The damage will be replaced.

Deferiet, N. Y.—In connection with an official survey of communities in Northern New York, it is pointed out that the St. Regis Paper Company owns every house in the Village of Deferiet, with the exception of two structures, and that every resident of the village is an employe of the company, except the Mayor.

Toronto, Ont.—The Abitibi Power and Paper Company, 86 University avenue, Toronto, has completed plans and awarded contract to Lang & Ross, 620 Queen street, Sault Ste. Marie, Ont., for the construction of a new power transmission line in the Abitibi Canyon district, reported to cost close to $1,000,000, with power substation facilities. The line will be about 114 miles long.

Buffalo, N. Y.—The duPont Cellophane Company has announced a six-hour day for all employees at its cellulose material mills, including plants at Old Hickory, Tenn. Under such a plan it is proposed to give employment to an increased number of workers. The mills are running on a

full capacity schedule and will continue on that basis indefinitely.

Benton Harbor, Mich.—The freighter "Reinunga," from Bergen, Norway, has arrived at South Haven with a cargo of pulp wood for one of the mills in this district. This is the first of nine such cargoes scheduled to arrive here before the close of the year.

Cleveland, Ohio—The Di-Nock Manufacturing Company, 875 East 140th street, manufacturer of decalcomanias and kindred paper products, contemplates the construction of a new one-story plant unit for considerable increase in present output. A site will soon be selected. New unit is reported to cost over $40,000, with equipment. Keith T. Weigle is president; and Thomas A. Reese, secretary.

Manistique, Mich.—The Manistique Pulp and Paper Company has become closely identified with the Edison Sault Electric Company, Sault Ste. Marie, Mich., recently organized, and it is understood that the latter company has acquired an interest in the pulp and paper organization. Work has been started on a new transmission line from Sault Ste. Marie to Manistique, and service will be rendered, it is said, to the pulp and paper mill. The Edison company will carry out an extensive expansion program, including an addition to hydroelectric generating plant on the St. Mary's river, with installation of new machinery to double approximately the present output. The transmission line program will comprise a total of more than 125 miles of high tension system, extending to St. Ignace and other points. The entire development is reported to cost over $750,000.

New Companies

New York, N. Y.—Knapp & Company, Inc., has been incorporated with a capital of $10,000, to manufacture and deal in paper specialties, cardboard novelties, etc. The incorporators are Alexander E. Sheer and R. Kaufman, 1540 Broadway, New York.

Milwaukee, Wis.—The Forester Label Works, Inc., 147 North Broadway, has been incorporated with a capital of $40,000, to manufacture paper labels and similar paper goods.

Brooklyn, N. Y.—The Standard Pulp Products, Inc., has been chartered under Delaware laws with capital of $500,000, to manufacture wood pulp and paper products. The incorporators are Titus H. Irons and B. Chandler Snead, Brooklyn; and John C. Sebright, Forest Hills, N. Y. Company will be represented by the United States Corporation Company, Dover, Del.

Brooklyn, N. Y.—The Neypaco Paper Corporation has been incorported with a capital of $20,000, to manufacture and deal in paper goods. The incorporators are David S. Sven and Grady L. Vaughn, 148 Fifty-ninth street, Brooklyn.

Philadelphia, Pa.—The Furlong Wall Paper Mills, Inc., Leverington avenue and Baker street, has filed a voluntary petition in bankruptcy.

Indianapolis, Ind.—The Capital Paper Company, 225 West South street, has filed notice of company reorganization under the same name.

Philadelphia, Pa.—The M. Kardon Box Company, 220 Pine street, has filed notice of company organization to operate a local plant for the manufacture of paper boxes and containers. Morris Kardon, 443 South Forty-ninth street, heads the company.

Philadelphia, Pa.—Gubler & Co., Inc., care of the United States Corporation Company, Pennsylvania Building, Philadelphia, has been incorporated under Delaware laws with a capital of 100 shares of stock, no par value, to deal in paper products of various kinds.

New York Trade Jottings

George E. Schneider, secretary of the Industrial Bureau of the New Orleans Association of Commerce, which is making great efforts to develop the paper industry in the South, was a New York visitor last week.

* * *

Henry Gade Paper and Twine Corporation has been chartered under the laws of the State of New York with a capital stock of $20,000. Eppstein & Hirshfield, of 521 Fifth Avenue, New York, were the attorneys.

* * *

Claude O. Streeter, widely and favorably known mechanical engineer in the power transmission field, has severed his connection in New York City and returned to his home in Shrewsbury, Mass. His plans for the immediate future are not definitely settled.

* * *

Royal S. Kellogg, secretary of the News Print Service Bureau, will be the guest speaker at the regular weekly luncheon and meeting of the Eastern Division of the Salesmen's Association of the Paper Industry next Tuesday, November 10, at George's Restaurant, New York.

* * *

A general conference of manufacturers, distributors and users of binders board was held in New York on October 14 to consider a proposed commercial standard for this product and adjust it to the mutual satisfaction of all concerned. A concord of opinion was not reached at this meeting and the conference appointed a joint committee of binders board manufacturers and bookbinders. Following development of a satisfactory specification by this committee another general conference will be arranged for the consideration and approval of the standard.

* * *

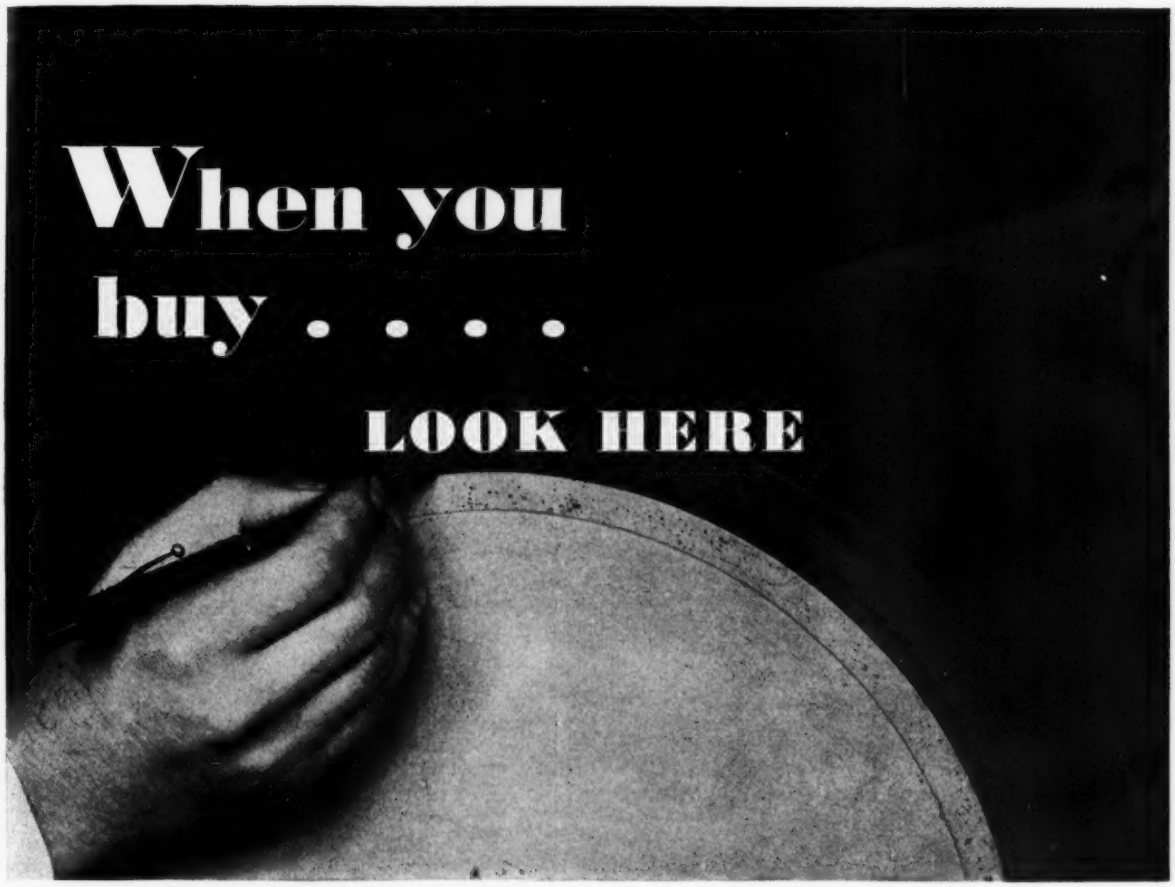
Edgar Sergeant, who retired as president of the E. M. Sergeant Company, importers of wood pulp and chemicals, in charge of sales, about five years ago to devote his time to painting, is to have his first one man shows at the Ferargil Galleries, 63 East 57th street, New York, from November 23 to December 7, inclusive. While in business Mr. Sergeant came into contact with many paper manufacturers, many of whom, in viewing his show, will be interested in knowing how he has been working. The pictures were done in the Basque country in France and Spain, in the Gaspé peninsular at the mouth of the St. Lawrence River, and in Vermont.

* * *

Mathieson Alkali Works, Inc., with offices at 250 Park Avenue, New York, reports for quarter ended September 30, 1931, net income of $387,256 after depreciation, depletion, Federal taxes, etc., equivalent after dividend requirements on 7 per cent preferred stock to 53 cents a share on 650,380 no par shares of common stock. This compares with $378,146, or 51 cents a common share, in the preceding quarter and $489,828, or 69 cents a common share in third quarter of previous year. Net income for nine months ended September 30, 1931, was $1,062,806 after charges and taxes equal to $1.43 a share on common, comparing with $1,597,462, or $2.26 a common share, in the first nine months of 1930.

Cost Men Meet at Holyoke

HOLYOKE, Mass., November 3, 1931—The first meeting of the season of the Connecticut Valley Chapter of the Cost Association of the Paper Industry was held Wednesday night at the Hotel Nonotuck. Brad Stephens of Boston spoke on "Charge It To Advertising." About 30 attended.

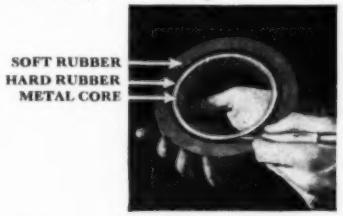


If you find Soft Rubber clear to the core... you'll get better cushion... longer wear

TIME to buy a new roll? "Vulcalock" is the name to remember. But in case you forget, just make sure that the cover is soft rubber *clear to the core.* Then you'll know you're getting a Goodrich roll... the *only* roll that has no hard rubber base. And consequently gives you full value for your money... in more efficient cushioning... in far longer life.

Take an actual case. A couch roll recently returned to us for re-covering. Its soft rubber cover had worn down to ⅜", too thin for efficient cushioning. But below that ⅜" of soft rubber was a hard rubber base ¼" thick.

See what a difference if that roll had been a Vulcalock roll, its cover soft rubber clear to the core. Instead of coming to us for re-covering, it would still be on the job. Its present cover of ⅝", now made up of ⅜" soft rubber, and ¼" hard, would be one hundred per cent soft rubber, a cushioning surface ⅝" thick, with *at least two good years ahead.*



Live cushion through and through, the Vulcalock couch roll naturally runs truer. It gives a fuller contact against the cylinder mold. Picks up the sheet more efficiently, and takes out more water. Very tough, its soft rubber cover sturdily resists wear.

Performance facts and figures are available. And literature is yours for the asking. Address The B. F. Goodrich Rubber Co., (Est. 1870), Akron, Ohio.

• • •

(At left) The Old-Type Roll. Note the "dead" hard rubber base between the soft cushion and the metal core. Eliminating this hard rubber foundation, Vulcalock couch rolls cushion better... wear longer.

VULCALOCK *Paper Mill* ROLLS

Another B. F. Goodrich *Product*

Couch Rolls · Press Rolls · Table Rolls · Wire-Carrying Rolls · Felt-Carrying Rolls, both Plain and Wormed · Wringer and Squeeze Rolls

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LOCKWOOD'S DIRECTORY OUT

The new edition of Lockwood's Directory of the Paper and Allied Trades is just off the press. This is the fifty-seventh annual edition of this work.

Owing to business conditions the changes in all sections of the Directory have been unusually numerous. Although comparatively few new mills have been added, the changes in other respects in the mill section have been considerably greater than in former years. A number of important consolidations are noted, numerous changes in machinery are listed, and the number of both idle pulp and paper mills has increased materially. On the whole, however, the changes in the mill section bear out the impression that the pulp and paper business has suffered in the world wide business depression less severely than most other basic industries.

Owing to an insistent demand and in order to fill a long felt want, there is presented this year, beginning on page 887, a Directory of Mill Equipment and Supplies. In this Directory are listed without charge, manufacturers of pulp and paper mill machinery and supplies under as many headings as necessary for an adequate showing of their products. This Directory may, therefore, be considered as representative of the machinery and supplies required for the entire pulp and paper mill field. If eligible new concerns or eligible firms who may have been omitted will inform the publishers, their names will be included in the next edition of the Directory. Addresses of firms are not given under the various headings, but an alphabetical list of all firms listed with their addresses is printed beginning on page 1004. In general, the approved methods employed in compiling works of this kind have been followed and it is believed that this Directory will furnish an easy and valuable source of information for everything in the line of machinery and supplies required in the manufacture of pulp and paper.

The additional sections of the Directory have been corrected with great care and it may be assumed that these are as correct and accurate as it is possible to make a work of this kind. These include the Classified List of Pulp and Paper Mill Products, Manufacturers of Paper Specialties, Parchment, Wax and Toilet Paper Manufacturers, Prepared Roofing Manufacturers, Glazed, Coated Paper and Board Manufacturers, General Paper merchants, Rags and Paper Stock Dealers, Rags and Paper Stock Consumed by the Mills, Paper Box Manufacturers, Paper Bag Manufacturers, Envelope Manufacturers, Tablet and Pad Manufacturers, Tag Manufacturers, Wall Paper Printers, Twine Manufacturers, Papeterie Manufacturers, Addresses of Mill and Mill Supply Houses, Pulp Testing Chemists, Watermarks and Brands and Associations in the Paper and Allied Trades.

The Directory for 1932 is, as usual, issued in two editions. The regular edition includes more than one thousand pages. The Travelers' edition is approximately 250 pages and contains only the information concerning the mills. It measures 5 x 8 inches and is attractively and substantially bound in a flexible cover. It is designed to supply as completely and conveniently as possible all the information regarding the pulp and paper mills required by the traveling men. The cost of each edition is $7.50 or $7.00 cash with order.

Orders should be sent to the Lockwood Trade Journal Company, 10 East 39th street, New York.

CONFIDENCE RETURNING

Largely because of the demonstration of banking power and solidarity revealed in the plans for the National Credit Corporation and other constructive measures, the American people appeared at the close of last month to be freeing themselves from their fears and regaining their sensible character, the National City Bank of New York says in its current bulletin.

The most significant sign of this returning confidence, the bank says, was the decline of $24,000,000 in the volume of money in circulation in the final week of the month, which seemed to indicate that the panicky hoarding of currency had passed its peak. In addition the bank cites the rally in the stock market as indicating renewed public confidence in this country, while the easiness in foreign exchange rates and the subsidence of the gold export movement showed a relaxation in the demands on the dollar abroad.

After discussing the National Credit Corporation in detail, together with proposals put forward by President Hoover for strengthening the Federal Land Banks, liberalizing the rediscount privileges of the Federal Reserve and, if necessary, creating a government finance corporation, the bank says:

"It is our view that the dramatic events of these few

weeks have immensely strengthened the resolution of the strong banks, members of the Federal Reserve System, to cooperate effectively in support of the situation, and to widen the latitude of the individual assistance they give. We referred earlier to high liquidity of the strong city banks. The policy which these banks have followed of keeping strong now proves its worth, and supplies its own answer to the critics who would have had the bankers fritter away their resources in all kinds of futile and misguided efforts to 'restore prosperity.'

"Now the country is experiencing an abnormally increased call for credit, not from visionaries wanting huge sums for schemes to revive trade, but from fearful people demanding the repayment of their money. It is a demand that will be relaxed as fear recedes, as currency and deposits return to the banks. Meanwhile it is fortunate that the overwhelming majority of the larger banks, possessing very much the larger part of the country's banking resources, are able to support these demands, diffusing their liquidity throughout the banking system."

English News Print for New Zealand

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., November 2, 1931—A cable from New Zealand anonunces that the New Zealand Newspaper Proprietors' Association have passed a resolution recommending its members to place at least two-thirds of their news print orders for the coming twelve months with English manufacturers. This step, which means a substantial loss for Canadian news print manufacturers, who have hitherto supplied the bulk of New Zealand's requirements, was taken in view of the fact that New Zealand's prosperity depends on the industrial prosperity of Great Britain, and in recognition of Britain's generosity in suspending the funded war debt payments.

This was set forth in the resolution. No mention was made officially of the present break in the trade relations between Canada and New Zealand, but the action was expected following the imposition of new Canadian tariff regulations which deprived New Zealand butter producers of a large share of the Canadian market. Meanwhile negotiations are pending for a new trade agreement, but the matter is in abeyance pending a general election in New Zealand which is expected to take place around the first week in December.

Androscoggin Pulp Co. Sold

[FROM OUR REGULAR CORRESPONDENT]

SOUTH WINDHAM, Me., November 2, 1931.—The Androscoggin Pulp Company of South Windham, Maine, has been purchased by Schluter & Co., Inc., for the account of associates. No public offering is contemplated.

The Androscoggin Pulp Company, established in 1870, ranks as the oldest pulp manufacturing concern in the State of Maine. Present plans do not call for any important change either in manufacturing methods or products.

The company's existing list of products includes: ground wood pulp and wood pulp board for milk cap boards, mill wrappers, case liners, container fiber board, fiberlox partitions, test jute board, book match board, winding board and non-tarnish board.

The board mill and ground wood pulp mill are located at South Windham, Maine. Daily capacity 100 tons of board and 60 tons of pulp.

Orville Frank Bryant Dead

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., November 2, 1931—The death took place here on Tuesday last of Orville Frank Bryant, technical adviser to the Canadian Pulp and Paper Association. He was in his 45th year.

Mr. Bryant had been for many years among the most prominent of those connected with the technical operations of the pulp and paper industry of Canada. Educated at the University of New Hampshire, he received his first experience in the paper industry in Wisconsin and came to Montreal in 1914 to take charge of pulp and paper research work of the Dominion Government. In that position he soon showed qualities that led to his being called to a succession of important posts in the industry.

He was associated with Bennett's, Limited, Chambly, P.Q., for three years; and with the Laurentide Paper Company, Grand'Mere, P.Q., for seven years. He left Grand'Mere to become manager of the sulphite mill of the Nashwak Pulp and Paper Company, St. John, N.B., Just over a year ago he was asked by the Canadian Pulp and Paper Association to take on the duties of general technical advisor to the association and the various bodies connected with the Pulp and Paper Research Institute. He accepted, although it meant a financial sacrifice.

At his funeral on Friday there was a large gathering. Chief mourners were his wife and two children, Misses Priscilla and Bancroft Bryant, his father and mother, Mr. and Mrs. W. H. Bryant, of Ashland, N. H., and his father-in-law, A. E. Linnell, Woolaston, Mass. Interment was in Mount Royal Cemetery.

Those present included the entire staff of the Pulp and Paper Association, including the president, Harold Crabtree; representatives of McGill University, and many prominent men in the industry on both sides of the international border.

Paperboard Industries To Meet

The Paperboard Industries Association will hold its annual meeting at the Hotel Commodore, New York City, November 18-19.

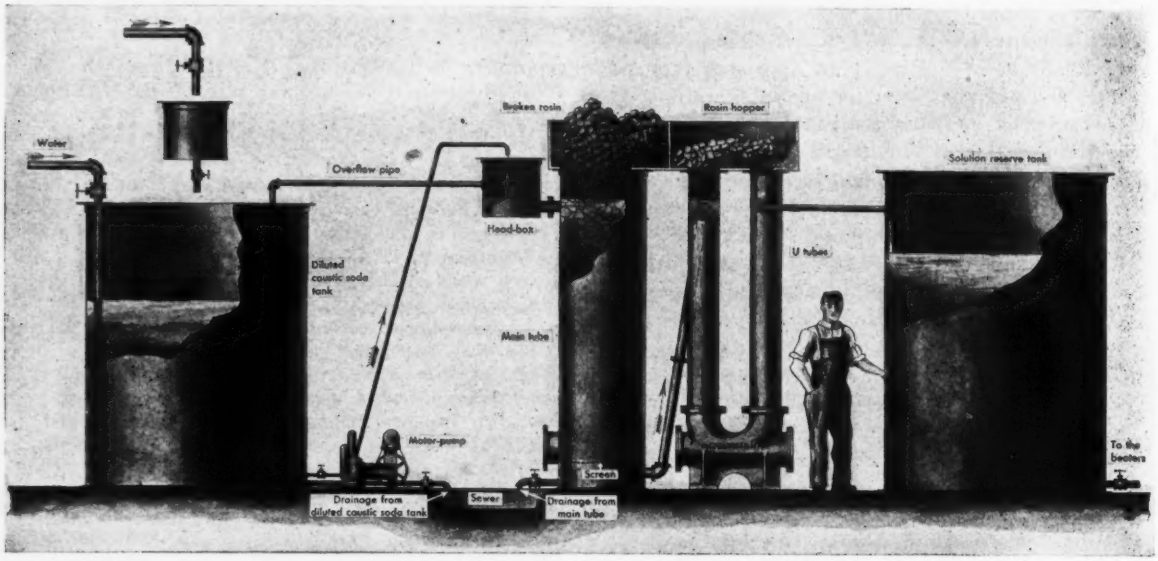
The arrangements for the annual dinner are in charge of a special committee consisting of E. Victor Donaldson, Robert Gair Company; W. G. Latham, Fort Orange Paper Company, and Samuel Samuels, American Corrugated Paper Products Corporation. The ex-presidents of the association will attend the annual dinner, and strong effort is being put forth to make this affair interesting and entertaining.

At the annual meeting, a president, three vice-presidents and the members of the executive committee will be elected for the ensuing year.

Judging by the reservations which have been made, the group and general sessions, and also the annual dinner, will be unusually well attended.

Stewart Paper Products Co. Formed

PORTLAND, Ore., October 22, 1931—The Stewart Paper Products Company, Inc., has been organized in Hoquiam, Wash., with capital stock of $50,000, by Lowell P. Mickelwait and DeForest Perkins to sell specialties of the Grays Harbor Pulp and Paper Company, according to announcement of W. C. Lucey, superintendent. Cash register rolls, adding machine rolls and similar lines are to be included in products which the new company will handle. Offices will be in Hoquiam.



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Section of the
Technical Association of the Pulp and Paper Industry
Edited by Ronald G. Macdonald, Secretary

Technical Co-operation In The Development Of Cost Standards*

By Thomas J. Burke[1]

It was a pleasure to receive the invitation from your able Secretary to talk to you on the subject of cost standards. The value of the work the Technical Association and its members are doing for the Pulp and Paper Industry is well known and I want to take this opportunity of congratulating you upon that work and upon the splendid co-operation that your members generally give to TAPPI. By keeping in closer touch with your work, I hope to do my share to bring about closer cooperation between the technical men and accountants.

The fact is, that your success in solving many of the production problems of the industry has had a very beneficial effect upon the work of the accountants, whom I am representing today, because it has brought about better technical control in the mills and by so doing has made possible better accounting control. However, we all know many such problems still remain to be solved, and until these problems are solved satisfactorily we accountants will still have difficulty in getting accurate costs. My objective then in speaking to you today is, to tell you something about our difficulties with the hope that by so doing, we can bring about closer cooperation between the technical and accounting men in the industry. We believe, that close cooperation between the two is essential if reasonable profits are to be made by a mill under present competitive conditions.

Looking backward for a moment we might say that up to about 1920 we were operating in a production era, that is if you made good paper at a reasonable cost you could make reasonable profits. After the depression of 1921, we entered a selling era, when we realized the necessity and value of more intensive selling methods in order to dispose of our steadily increasing-production. Of course, the necessity of producing good paper at a reasonable price still remained but coupled with it was a necessity for better and more intensive selling methods.

Since the slump of 1930, we have entered another era and for want of a better word, I shall call it a financial era. We still more than ever before must make good paper at a reasonable cost, also we must use the best available selling methods in disposing of it, but coupled with these two is the vital necessity of keeping production costs plus selling expenses under the selling price so as to obtain some sort of a return on our investment. That requires adequate accounting control and careful financial management. That's why I call it a financial era.

Our executives are the men charged with the responsibility of doing this and indeed this responsibility lies heavy on their shoulders. You gentlemen, have undoubtedly helped them in many cases to bear these responsibilities by research work, and by developing new manufacturing methods or changes, which have reduced manufacturing costs. The accountants also have done their share by improving accounting technique and thereby developing financial data and information, which has enabled executives to base decisions on facts, whereas they had previously to base them on "hunches." I am referring particularly to the development of machine-hour costs, grade costs and job-order costs, all of which have had a share in the past success of mills, which I could name.

For instance, instead of only showing, as had always been done, the cost and profit per ton, we added another column after developing paper-machine hour costs, showing the cost and profit per machine-hour. That is a most important figure for a paper mill executive to watch. You can only run your machine, say, approximately 6600 hours a year, and what is really being sold is the time of these machines.

If you have a one machine mill with a total investment of $750,000 and want to make 10 per cent or $75,000 on this investment, this means that you must make an hourly profit of approximately $11.40. Cost procedure properly developed along these lines brought out some very surprising facts. For instance, in one case which came to my attention, it showed that one grade much advertised and pushed by the Sales Department was only showing an hourly profit of $8.00, while another grade showed a profit of well over $20.00, just 2½ times as much. The profit per ton did not show up anything like this difference. By gradually dropping the former grade and pushing the latter, this mill in a little over a year almost doubled its profits. Again, only a few weeks ago I was examining some cost sheets in a mill which has an excellent technical man, now attending this convention and an equally excellent accountant, and they work together. I noticed that in one grade they made a profit as high as $65.00 an hour, while in many their profit did not exceed $25.00. But note this, *they always made a profit.* There wasn't a red figure in the lot and since they know me well by which I mean, I am glad to say I enjoy the fullest confidence of the chief executive, they showed me their cost sheets and profit and loss statements for two years back. I may add, that it is not a large mill, yet they made more money during the first six months of 1931 than they did in 1930 and their sales were smaller. The answer is, they have been pushing their profitable lines based on their hourly grade costs and profits, and have profited accordingly.

TAPPI SECTION, PAGE 205

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* Presented at the Fall Meeting of the Technical Association of the Pulp and Paper Industry, Kalamazoo, Mich., Sept. 24-26, 1931.
Contribution of the Management Methods Committee.

[1] Director, Cost Department, American Paper and Pulp Association, New York, N. Y.

Standard Costs

But they have gone further than this, they have improved their accounting procedure to keep up with the modern trend in accounting by installing *standard costs*. As most of you know and as their name implies, standard costs are nothing more than costs based on operating or performance standards set up in each operating unit throughout the mill. The necessity for them has arisen because of the lack of forward buying by distributors and the decreasing size of the orders when received. These conditions make it vitally necessary that the executive shall know almost daily what his profit or loss was on the previous day's business. It is impossible to make up the actual cost figures in this time, but by developing operating standards, cost standards can be set up and used for the purpose, which check so closely with the actual costs when compiled that they can be safely used by the executive and his sales department in dealing with the very troublesome competitive conditions, which they have to meet.

Now, gentlemen, many of you probably think I have been rather a long time in getting to the point, but this is just where your great opportunity lies, as things are today, viz in working up these operating standards and standard furnishes, and then seeing to it that the standards are adhered to.

We might say there are three kinds of costs: First, what might be called the "as is" costs, viz, costs that are still being compiled as they have been for years past, generally a cost per ton monthly, inclusive of all grades manufactured. Second, there are "should be" costs, viz., costs based on operating standards built up on the normal expectancy of what should be accomplished with the available machinery and equipment, and the existing lay-out of the plant. Then third, there are, what we will call the "might-be" costs, viz costs based on standards of performance of what might be accomplished if recommended changes were made in the machinery and equipment or lay-out.

The first kind of costs should be scrapped, because the cost figures developed vary with large or small production. It is my belief, that because this procedure has been so prevalent in the past, many mills seem to have lost sight of the fact that they are in business to make profits and not paper, making the latter, being merely a means to an end. This method of cost-keeping has focussed their attention on production because they know when this goes up their cost sheets show a lower cost. That's just where their cost sheets lie. Providing they operate at the same efficiency (and they have no way of judging this on a dollars and cents basis), their costs are the same and the cost sheets lie because certain expense items are included when production is down, which should not be there, but should be shown as a separate charge to profit and loss representing a loss due to lack of orders and consequent lowered production.

It is with regard to the second and third kind of costs that you gentlemen have such splendid opportunity to become of paramount value to management through close cooperation with the accounting department.

In this connection I'll ask just one question: What is the best method of measuring the use of slushed pulp? Perhaps you'll excuse me, if I ask another. If there is a "best method," what is the best way to check up to see that this best method is rigidly adhered to in a mill. If you can help us in that one problem you will save many gray hairs and bald heads among accountants, and what is more important, as you well know, may save many thousands of dollars for your mill and thus get back that 10 per cent salary reduction which I suppose, like me, many of you have had to take.

Your assistance through your technical knowledge is essential to the development of correct cost standards, and correct cost standards are essential if the industry is to get back on a sound economic basis. In this connection I may say, that in many cases the general attitude seems to be that as long as the mill is kept up-to-date technically, the development of cost standards is not necessary, because with their technical improvements they must be operating as efficiently as possible, and to check this efficiency is a waste of time and money. It is our belief that this check is essential and may in its turn prove helpful in developing data relating to the actual operations that may lead to further improvements and savings through cooperation with the technical department.

Cost Reduction

The reduction of industrial costs has been defined as: "The central problem of industry to the solution of which all other problems must be subordinated."

This viewpoint is reflected today in nearly all plans for the improvements of industrial relations and as regards the pulp and paper industry, I believe it to be a true statement and that the reduction of costs is our central problem. In this I know I differ with many, who feel that what we want is better prices, and that is our central problem. True,—we do, but it's equally true that higher prices can only come from stabilization, which can only be effected after long and arduous work, on the part of those manufacturing a majority of our tonnage, in the development of standard costs, whereby they may know to a certainty that if they sell below a certain figure, they will not make a profit.

I say this, because it's my belief that the study and thorough analysis necessary for the development of reliable operating and furnish standards, will often lead to the effecting of savings, which are just as effective in increasing profits as increased sales prices, and its my personal belief, that the possibilities along this line in the majority of mills are greater than they are along the line of getting higher prices due to the surplus productive capacity in the industry.

Are there not two classes of men in business today? One that works to keep his losses as low as possible and lives in the hope that a miracle will bring back former prosperous conditions ,and one that forgets the past and works solely with the idea of what he can do to make profits under present conditions. We can't do this by cutting prices. We can do it by raising prices, but if we do this by concerted action, we are liable to heavy penalties and I might add, that in Canada, where such penalties do not exist, such attempted concerted action was a pitiable failure due to conditions similar to those confronting all grades in this country today.

That's why I believe that, just as we have set up a standard of living in this country better than has ever existed in any other country, so in the pulp and paper industry we must develop standards of operation better than have ever existed in the industry before. Who, better than the technically trained man, is there to develop these standards? For you and us accountants here lies a wonderful opportunity to prove our worth. We are living in a financial era. The dollar reigns supreme and the man, who can find a way to make two dollars grow where one grew before, is the man of the hour. In our industry this can only be done by research and through technical control and if you gentlemen will do what is necessary to effect this and given time, I believe you will, it will make it possible for us accountants to reach our ideal of thorough accounting control and enable us to supply data relating to the dollars and cents end, which in its turn may prove helpful to you as well as our executives. I can assure you on behalf of the accountants of the industry, that for whatever you can do to bring about this millennium we shall be eternally grateful.

TAPPI Lake States Section Meeting

The Lake States Section of the Technical Association of the Pulp and Paper Industry will meet at the Conway Hotel, Appleton, Wis., Tuesday evening, November 10. An attendance of well in excess of one hundred is anticipated. The first paper to be presented will be by J. W. Grimes of the Standard Oil Company of Chicago, Ill., on the subject of Lubrication in the Pulp and Paper Industry. The second paper will be by L. M. Young of the Mueller Brass Company, Port Huron, Michigan, on the subject of Cleaner Paper with Copper Pipe.

Determining the Bursting Strength of Paper*

By James d'A. Clark[1]

The advent of the Schopper-Dalen bursting tester some three years ago led several investigators to record the discrepancies between its readings and those of the Mullen tester, and to critically examine both instruments[2] and also the official TAPPI method for determining the bursting strength of paper. Certain deficiencies in the latter are apparent and an attempt is here made to draft a more precise specification for a standard method.

Unfortunately, it would appear that it is inconvenient, if not impracticable, to specify such a method in terms which do not include empirical conditions. It is desirable also from the practical point of view to have a specification for a standard method which corresponds with existing practice as nearly as possible. However, this is not thought to mean that the specification should be so simple and so accommodating as to include methods adapted for every day routine control tests, any more than the purchase of a pound of sugar requires corrections to be made for the density of the weights used and the air temperature and pressure, or even the moisture content of the sugar which may be quite appreciable. Some results to be given here show that it is possible to adhere strictly to the existing TAPPI specification and yet obtain results differing under conditions by as much as ten percent.

The main change suggested is to specify that the specimen be burst in a certain time from the commencement of the application of the pressure and that the pressure be uniformly increased until rupture occurs, in place of requiring that a definite volume per minute of fluid be pumped into the hydraulic chamber. Apart from the technical considerations involved in the latter procedure, which are later discussed, from the practical value of the bursting test, it must be allowed that the rapidly accelerating pressure accorded paper in a Mullen tester is unusual, for in use it is generally burst by a slowly increasing pressure, as, for example, a paper sack being filled with a commodity or even a pressure which tends to decrease as when someone accidently applies force to, or some object strikes a paper article.

Suggested Method

APPARATUS:

1. Means for firmly clamping the specimen without slippage during the test, between two annular plane surfaces which have fine concentric tool marks for the purpose not over .002 inch deep. One of these surfaces, the clamping ring, to have a circular aperture with a diameter of 1,200 inches with a 0.025 inch radius at its clamping edge so that the edge diameter is 1.250 inches.

The other, the clamping surface, to have a circular aperture of 1,250 inches having a sharp edge, the aperture having a depth of 0.2 inch, and having at its lower edge a radius of 0.1 inch, so that its lower edge in contact with the rubber diaphragm has a diameter of 1.450 inches.

The apertures in both surfaces are to be coaxial.

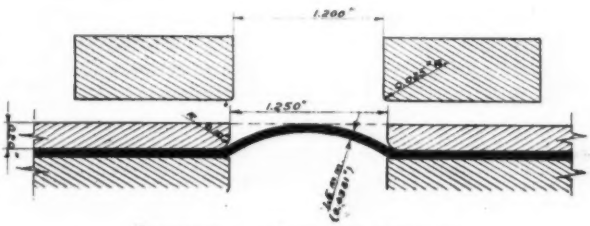
2. A rubber diaphragm clamped between the underside of the aperture in the clamping surface and the rest of the apparatus such that before the rubber is stretched by pressure beneath it, with sufficient slack so that the centre of the upper surface of the diaphragm is in the same plane as that of the clamping surface.

The thickness of the rubber to be 1.5 mm. and of such quality that a pressure of 36 inches of glycerin applied to its under surface causes it to bulge to a height of 3 mm. above the clamping surface.

3. Means for applying a uniformly increasing fluid pressure to the underside of the diaphragm until the speciman is burst.

SAMPLES:

Specimens for the test should be so selected from a sample secured by the official sampling method as to be truly representative of the shipment being tested.



DIMENSIONS OF SUGGESTED APPARATUS

METHOD:

The test is to be made after the paper has been conditioned according to the official method. The specimen must be securely clamped in position and a uniformly increasing fluid pressure applied to the underside of the rubber diaphragm so that the specimen will be burst in a minimum time of 1.5 seconds or one-fortieth part in seconds of the average bursting strength of the paper in pounds per square inch.

At least 10 bursts should be made of which half are from either side of the paper.

If the average of the lowest and highest figures differ from the average of all the readings by more than 5 per cent, a further series of bursts must be made till there is agreement within these limits. In the case of an irregular sheet of paper it may therefore be necessary to conduct a very much larger number of tests than ten which is the minimum number for the most uniform paper. An isolated very high or low burst, which is not repeated in duplicate, should be discarded when a consistent average is obtained without the abnormal reading.[3]

The gauge used should be such that the bursting strength of the paper tested is not less than 10 per cent of the total gauge reading beyond zero nor more than 75 per cent of the gauge reading.

CALIBRATION:

The gauge used should be calibrated every month at least and be calibrated while inclined at the same angle at which it is to be used. It is preferably calibrated against a dead weight gauge tester of the piston type, or a mercury column. With either, a standard pressure of the requisite degree is built up and while slowly rotating the weighted plunger of the gauge tester, if this is used in place of the mercury column, the valve connecting the pressure to the gauge is opened at such a rate that the pointer in the gauge comes to rest in 1.5 seconds or more according to the formula if the pressure is over 60 pounds per square inch. A record should be kept of any deviations of the indicated readings and a corresponding correction made from the test results secured with the gauge.

* Presented at the fall meeting of the Technical Association of the Pulp and Paper Industry, Kalamazoo, Mich., Sept. 24-26, 1931.

[1] Member TAPPI; development engineer. The Mead Corp., Chillicothe, Ohio.

[2] G. F. Underhay. Bursting Test Standardization. World Paper Trade Review, December 26, 1930, et seq.

[3] This procedure was suggested for paper tests by James Strachan and has been found in practice to give very satisfactory results.

REPORT:

The report should include the average and the maximum and minimum test results, such results being expressed to the nearest 2 per cent. The bursting strength should also be reported as a ratio as follows:

$$\text{Bursting strength ratio} = \frac{\text{Average burst in pounds per square inch} \times 100}{\text{Substance of paper (lbs. 25" x 40"—500)}}$$

$$= \text{Burst factor} \times 2.00$$

or

$$\text{Burst factor} = \frac{\text{Average burst in gms./cm}^2}{\text{Substance of paper (gms./M}^2\text{)}}$$

or

$$= \frac{\text{Average burst in pounds/in.}^2 \times 70}{\text{Substance of paper (gms./M}^2\text{)}}$$

$$= \text{Bursting strength ratio} \times 0.500$$

Discussion

DIMENSIONS OF THE CLAMPING RING:

These have been selected so as to correspond as nearly as possible with the conditions in the original Mullen instrument where the upper clamping surface was a relatively hard rubber ring having an internal diameter of 1.250 inches. Snyder[4] concluded that the all metal ring was superior and after some discussion the conclusion was agreed to and the recommendation was followed by the use of a 1,240 inch diameter clamp. When comparative tests were made by Carson, somewhat lower values were obtained with the new ring and by measuring the internal diameter of the rubber ring under pressure, it was found to be 1,200 inches and the internal diameter of the metal head altered accordingly.

In a later paper[5] it is held that paper does not normally break at the edge of the orifice, and that a relief of the sharpness is all that is necessary. However, a standard method should be able to be equally well applied to every class of paper and it has been observed that test sheets made from very short free pulps tend to break round the orifice if its edges are sharp. Also, as the "relief" of the sharp edge may be interpreted to be any small radius, it is thought well to specify this, which is suggested as .025 inch. It is most probable that a 1.250 inch internal diameter hard rubber clamp compressed against a 1.250 inch metal orifice would give a very similar edge contour to that specified.

A number of the old Mullen testers were examined and the average thickness of the lower clamping plate was found to be 0.2 inch. As for precision work this thickness influences the behavior of the rubber diaphragm; it is thought well to specify it. The 0.1 inch radius on the edge next to the diaphragm is specified for the same reason and serves to prevent undue stress round the edge of the diaphragm when expanded.

Regarding the coaxial alignment of the clamping rings, it has been noticed that this is not good in several Mullen testers examined. It is suggested that possibly the ball and socket joint at the end of the spindle holding the tripod of the upper clamp be dispensed with and that they be attached rigidly together as is done on the Schopper-Dalen tester. The ball and socket tripod joint now provided is the principal cause of lateral movement and is only called upon to function when the lower clamping orifice is not coaxial with the spindle, which condition is undesirable and unnecessary.

RUBBER DIAPHRAGM:

The bulge of the rubber diaphragm at the instance of rupture may vary from 2 mm. for news and over 4 mm. for manilla, a bulge of 3 mm. corresponding to a pressure of about 1.5 pounds per square inch for the regular Mullen diaphragm. It is clear that for thin papers bursting at below 10 lbs. per square in. this error becomes appreciable and for the standard test to be complete the conditions should be specified. The figures given were obtained from a regular batch of rubber diaphragms supplied by the B. F. Perkins Co., 3 mm. being selected as an average bulge at which paper bursts. The method is simple, involving only the substitution of a long U tube for the regular gauge and applying pressure by turning the hand-wheel until the requisite bulge occurs and then reading the height of the glycerine column above the clamping plane.

APPLICATION OF PRESSURE:

Considerable reluctance is felt towards specifying a uniformly increasing fluid pressure, thus departing from the existing standard procedure for the Mullen tester, but it is submitted that with the evidence here presented it is the only satisfactory means of insuring a precision test.

There are two possible methods of calibrating a Mullen gauge on a dead weight type of tester, the usual or static method, which it is understood is used by the makers of the gauges, being as follows: After attaching the gauge to the tester in the prescribed manner, the valve connecting the gauge to the instrument is opened and the plunger is screwed down until the piston and the test weights thereon are raised so that the desired pressure is transmitted to the oil. The weights on the piston are than rotated by a gentle rotary motion of one hand while with the other the needle return button on the gauge is pressed in and slowly released until the pointer on the gauge comes gently to the indicated pressure. This procedure is repeated with a different set of weights and the gauge is calibrated. As when using a Mullen tester the pressure beneath the diaphragm is very rapidly built up as the bursting pressure is reached, certain operators have concluded that it is more satisfactory to use a dynamic method of calibration as follows: The gauge is attached as before, the oil pressure in the tester relieved and the needle on the gauge set to zero with the piston carrying the desired weights resting on the instrument frame. The piston and weights are continuously rotated by hand and at the same time the plunger is screwed in at about 60 r.p.m. until the piston and weights are suddenly raised and the corresponding reading on the gauge is noted. This produces not only the pressure corresponding to the test weights but a momentary additional pressure to overcome the inertia in lifting them which results in an appreciably increased gauge reading than when the static method is employed.

The following results were obtained using the same Mullen gauge and two different dead weight testers.

Dead Weight Tester 1
Weighted to give a pressure of 15 lbs. per square inch
Static Method—gauge readings, 14.5 lbs. per sq. in. (repeated)

Dynamic Method.....16.5, 16.5, 16.5, 16.5, 16.5, 15.8, 15.8, 16.0, 16.5, 16.5, 16.5, 16.0, 16.0.
Average 16.5 lbs. per sq. in.

Weighted to give a pressure of 20 lbs. per square inch.
Static Method—gauge readings, 19.6 (repeated)

Dynamic Method.....21.0, 21.2, 21.2, 20.8, 21.8, 21.2, 20.8, 21.0, 21.2, 21.3, 20.5, 20.8.
Average 21.1.

Dead Weight Tester 2
Weighted to give a pressure of 15 lbs. per square inch.
Static Method—gauge reading, 14.5 (repeated)

Dynamic Method.....20.8, 20.3, 21.7, 19.8, 21.2, 21.0, 21.0, 21.1, 21.2, 22.0, 20.0, 21.5.
Average 21.0.

Weighted to give a pressure of 20 lbs. per square inch
Static Method—gauge readings, 19.6 (repeated)

Dynamic Method.....25.5, 25.3, 26.0, 26.0, 24.8, 26.0, 26.0, 24.8, 25.3, 25.3, 24.8, 25.7.
Average 25.5.

Dead Weight Tester 2
After draining out some of the oil and so getting some air in the oil chamber and weighted to give a pressure of 20 lbs. per square inch.
Static Method—gauge readings, 19.6 (repeated)

Dynamic Method.....22.5, 23.0, 23.0, 23.0.
Average 22.9.

It is clear from the above that the dynamic method which roughly corresponds to the action on the Mullen tester, gives results considerably higher than the static method commonly used for calibration, and further the presence of varying quan-

[4] Leo. W. Snyder. P. T. Journal, Feb. 12, 1925, and Aug. 4, 1927.
[5] Research Paper 278. E. T. Carson and F. V. Worthington. Bureau of Standards.

tities of air in the system have a decidedly marked effect on the results when the dynamic method is used, the more air being present the lower the readings.

It is probably safe to say that the incompressible fluid called for in the TAPPI specifications is never attained owing to the small quantity of air possibly locked in when the gauge is screwed in, small leaks, and lastly the internal volume of the bourdon tube in the gauge. Rupturing paper in a Mullen tester is somewhat similar in effect to the inertia offered by the piston when employing the dynamic method of calibration. Consequently, a small variation in the amount of air present must make an appreciable difference in the results which has been confirmed by other workers.

In order to further study this inertia effect, a Schopper-Dalen Gauge (0-80 pounds) was attached to a motor driven Mullen tester on a tee piece leading to the regular 0—160 pounds Mullen gauge. The Schopper gauge employs a recording needle mounted centrally on the face glass of the gauge and supported in a bearing having a specially shaped spring which provides a very small amount of friction to hold the needle in place when moved. The indicating or usual gauge needle has a small wire at its tip which carries the recording needle round with it as the pressure rises and when the pressure falls, the indicating needle leaves the recording needle at the maximum pressure reached. The gauge is about 6 inches diameter and the moving parts possess more inertia than those in the Mullen Gauge. The vertical socket into which the Schopper gauge was screwed was completely filled with glycerin but trouble was experienced with the residual quantity of air in both gauges and in other parts of the hydraulic chamber, as on account of the limited volume pumped by a motor driven Mullen, the maximum pressure which the diaphragm could exert was unduly restricted. There was a valve between each of the gauges and by shutting off each in turn it was noted that there was apparently quite as much air in the Mullen gauge as in the Schopper gauge, because with either valve shut off a paper withstanding 70 pounds per square inch could be burst, but with both open, a paper having a higher test than 20 pounds per square inch, could not be ruptured. By taking special precautions such as filling the bourdon tubes in part with water and glycerine, sufficient air was eliminated from the system to enable the 70 lbs. per square inch paper to be burst with both gauges acting together.

By clamping a thin sheet of steel in the Mullen and slowly turning the pump the Mullen gauge was calibrated against the Schopper gauge which, in turn had been calibrated against a dead weight tester. Consequently, the Mullen gauge was in effect statically calibrated.

The two gauges were found to be in close agreement and for convenience the corrections have been added to the tabulated figures.

Strips of kraft, blotter, bristol board, cellophane, bond and glassine were cut in the machine directions and alternate place along the strips burst on the Mullen with the two different gauges attached and later tested on the Schopper-Dalen instrument also with both gauges attached. The Mullen and Schopper gauges on the Schopper-Dalen were found to be in absolute continuous agreement, the average test for a series being given in the last column in Table I.

After removing the Schopper from the Mullen tester a strip of the same bond and glassine was burst in alternate places on the Mullen and the Schopper-Dalen, then about 2 cc. of air was introduced into the Mullen tester with the following average results of ten readings.

Bond— Mullen 25.9—Mullen with air 26.8—Schopper-Dalen 26.4
Glassine— Mullen 14.2—Mullen with air 14.4—Schopper-Dalen 15.7

It will be noted that for the stronger papers when the Schopper gauge is on the Mullen instrument it reads several pounds more than the Mullen gauge. When the Schopper gauge is on the Mullen Tester, the recording needle can occasionally be noticed to swing beyond the indicating needle when rupture occurs owing to the speed of the recording needle just before the break and its inertia. On the Schopper machine however, as the increase of pressure is uniform, the speed of the needles is uniform and relatively quite slow so that when the paper bursts, the effect of inertia is practically absent.

On the other hand with weaker papers, being tested on the Mullen Tester the Schopper gauge reads lower than the Mullen gauge. This may be explained by the fact that the burst occurs in such a short space of time that only an impulse is given to the gauges and consequently the one with the least inertia, the Mullen gauge, responds most. When using the Schopper instrument however, as the time during which the pressure is increased is relatively large (1.5 secs.), the needle has ample time to move to a position corresponding to the actual maximum pressure.

The following additional table gives average values of twenty bursts made on 14 different papers on both the Schopper and Mullen instruments and shows the same relations. Table II. The Mullen gauge used in this experiment was a new one from the makers.

TABLE II
PAPERS BURST ON MULLEN TESTER AND ON SCHOPPER TESTER
(Average of 20 bursts)

Sample	Schopper	Mullen	Difference
1	12.7	8.2	— 4.5
2	13.3	9.6	— 3.6
3	15.5	11.7	— 3.8
4	17.0	14.1	— 2.9
5	18.5	16.1	— 2.4
6	20.3	18.1	— 2.1
7	20.0	18.2	— 1.8
8	22.1	20.4	— 1.7
9	24.6	22.5	— 2.1
10	34.6	36.8	+ 2.2
11	37.9	39.5	+ 1.6
12	42.6	43.7	+ 1.1
13	58.1	61.1	+ 3.0
14	83.8	91.9	+ 8.1

Both gauges were calibrated statically and corrections applied.

It is clear that unless the inertia of the moving parts in the gauge and the amount of air are specified in the present TAPPI specification, which would be impractical, the method is not suited for accurate work. For instance in Table I using the two different gauges on the Mullen tester and strictly according to the existing specification, except for the gauge reading being below 25 per cent for the weaker specimens, there is a positive

TABLE I.—PAPERS BURST ON MULLEN TESTER HAVING BOTH MULLEN AND SCHOPPER GAUGES ATTACHED

Kraft Test M	Kraft Test S	Kraft Duplicate M	Kraft Duplicate S	Blotter, 3-ply M	Blotter, 3-ply S	Bristol Board M	Bristol Board S	Cellophane M	Cellophane S	Bond M	Bond S	Glassine M	Glassine S
58	60.5	54	56	59	60	55	58	25	24.5	29	29.5	12	10
58	62	52	56	64	64.5	42	47	24	23.5	26	26	15	14.5
53	61	55	56.5	58	59	44	44.5	25	25	24.5	24	14	13
52	53	60	62.5	59	60	50	53.5	30	30.5	22	22.5	15	14
57	59.5	54	59	59	60.5	49	51.5	28	28.5	25	25.5	14.5	13
52.5	56	56	60	56	57	53	55.5	33	33	25	25	15	13.5
48	54.5	56	58.5	60	60.5	46	48	30	30.5	24	24	15	13.5
60	69.5	57	61	59	59.5	53	55.5	26	25.5	28	27.5	12.5	11.5
54	61	52	54	60.5	60.5	51	55.5	31	31.5	27	26.5	14	12.5
55	59	49	55	....	....	55	56.5	32	32.5	27	28	15.5	14.5
51	54	62	64.5	....	....	56.5	58.5	....	....	23	23	14	12
51.5	58	57	67	....	....	57	58.5	....	....	22	22	11.5	9.5
54.1	59.0	56.2	59.0	59.4	60.3	50.9	53.7	28.4	28.5	25.2	25.3	14.0	12.8
S.S. 50.0		48.5		53.5		45.4		27.5		26.1		16.1	

The last line "S.S." denotes the average of twelve readings when burst on the Schopper Dalen with both gauges attached.
"M" denotes readings on Mullen Gauge on the Mullen Instrument. "S" denotes readings on Schopper Gauge on the Mullen Instrument.

difference of 7½ per cent for the Kraft, 1 per cent in the case of blotter (owing to the slow rupturing of the material), 6 per cent in the case of the bristol board and a negative difference of 8½ per cent in the case of the glassine, which figure in turn is held to be some 14 per cent lower than the true bursting strength of the material.

The adoption of the specification as outlined here would be welcomed by those engaged in accurate comparative work and work of which permanent records are desired. The suggested test is practical to carry out on a hand driven Mullen, though not on the existing motor driven Mullen tester, which however possibly could be modified to suit. Very accurate suitable equipment is available in the Schopper-Dalen tester, which is nearly as convenient and rapid to operate as a motor driven Mullen. Finally, the results obtained from the specification drafted will not be so far away from current practice as to necessitate discontinuing or modifying present methods for control work or routine testing. With more applied science and accurate methods being adopted in our industry, there seems to be a pressing need for the most widely used of all paper tests to be accorded a description, which does not leave loop holes and possibilities for extravagant variations.

New TAPPI Members

Thomas J. Burke, director of the cost department of the American Paper and Pulp Association, New York.

Roger E. Chase of Tacoma, Wash. is the Pacific Northwest agent for the Zaremba Company, American Air Filter Company, Chas. Engelhard, Inc., Air Preheater Corporation, American Arch Company, Dust Recovery, Inc. and Hills-McCanna Company. In 1909 Mr. Chase graduated as a chemist from the University of Vermont and has been a mining chemist in Peru. He was also chemist for the American Smelting and Refining Company and the Laucks Laboratories in Tacoma.

R. V. Holland, engineer of the Union Gas and Electric Company of Cincinnati, Ohio, attended McGill University and the Pittsburg Polytechnic Institute. Mr. Holland was formerly engineer at the Three Rivers, P. Q. mill of the International Paper Company, and was for eleven years with the Westinghouse Electric and Manufacturing Company. He has also been employed by the Shawinigan Water and Power Company, Canadian Light and Power Company and the Nichols Copper Company. Mr. Holland was formerly a member of the Association.

Samuel B. Jones is paper mill engineer at the Piedmont, W. Va. mill of the West Virginia Pulp and Paper Company. Mr. Jones is a graduate electrical engineer and was formerly engineer with the R. B. Wolf Company, New York, the Gulf States Steel Company, Air Nitrate Corporation, General Electric Company, American Locomotive Company, Alabama Power Company and the Ontario Power Company.

Stewart J. Lloyd is dean of the School of Chemistry, Metallurgy and Ceramics at the University of Alabama, where he has been located since 1909. He previously was an instructor at McGill University and received his Ph. D. from Chicago University. At present Doctor Lloyd is supervising research relating to the sulphate pulping process.

Nathan R. Pike is a graduate of the University of Vermont in 1925. For a year he was plant chemist for the Fairbanks Scale Company, St. Johnsbury, Vt. and since 1926 has been a research chemist for the Brown Company at Berlin, N. H.

Merle R. Wilkins, graduated from Bowdoin College, Brunswick, Maine, in 1930 and has since been a chemist for the Brown Company, Berlin, N. H.

M. J. Taylor, research director for the Hoberg Paper and Fibre Company, Green Bay, Wisconsin, has been transferred from associate to active membership.

TAPPI Annual Meeting

The annual meeting of the Technical Association of the Pulp and Paper Industry will be held at the Pennsylvania Hotel, New York, February 15 to 18, 1932.

Members desiring to present papers should notify either the secretary at 370 Lexington avenue, New York, or any division or committee chairman before December 5. All manuscripts must be approved by committees before January 9.

The Paper Testing Committee has already published its proposed meeting program and will publish its papers in the PAPER TRADE JOURNAL in January so that they may be studied by members. Written discussion of these papers by those who may or may not be able to attend is invited.

The meetings of the Technical Association in the past few years have been very successful from the standpoint of attendance and quality of papers presented. Every effort is made to improve the meetings in some detail each year. This year the prepublishing of papers is an innovation. There will be two luncheons instead of one. The seating plan for the first will be according to committee and at the luncheon the progress and development reports of the committees will be presented. It is expected that in time this luncheon program will provide a real review of the entire technical progress of our industry each year.

Preliminary plans are made to have the TAPPI Fibrous Raw Materials Committee hold a joint meeting on Monday, February 15 with the pulpwood department of the American Paper and Pulp Association. All members of the Association will be welcome to attend this very interesting meeting.

Pacific Coast TAPPI Meets

The Pacific Coast Section of the Technical Association of the Pulp and Paper Industry met on October 23 at Powell River, B. C. The technical papers presented included, "New Developments in Sulphite Cooking," by A. H. Lundberg of G. D. Jenssen Company; "Some Drier Experiments," by P. Sandwell, resident engineer of the Powell River Company, Ltd.; and "Utilization of Saw Mill Waste," by J. H. Jenkins of the University of British Columbia.

R. B. Hansen, technical director of the Weyerhaeuser Timber Company, pulp division, Longview, Wash., was elected chairman of the section for 1931-32. Three vice-chairmen were elected to represent the three major geographical areas served by the section. R. J. Schadt, technical director of the Hawley Pulp and Paper Company, Oregon City, Ore., was elected vice-chairman to represent Oregon and the South, J. P. V. Fagan, superintendent at the Puget Sound Pulp and Timber Company, Everett, Wash., was elected vice-chairman to represent Washington, and I. H. Andrews of Powell River Company, Ltd., was elected vice-chairman to represent Western Canada. E. G. Drew, engineer for the J. O. Ross Engineering Corporation, Portland, Ore. was elected secretary.

Banquet addresses were delivered by R. Bell-Irving, resident manager of the Powell River Company, Ltd. and TAPPI national executive committeeman, L. Killam, president of the British Columbia Pulp and Paper Company and Dr. E. C. Jahn of the University of Idaho.

New Belt User's Book Issued

The ninth edition of the "Belt User's Book" has just been issued by J. E. Rhoads & Sons, makers of leather belting and lace leather, of 35 North Sixth street, Philadelphia. This book, with its new and attractive cover design, is a careful revision of the 1929 edition.

The specific suggestions, rules, tables, and charts that have made previous editions so helpful to the belt man, have been retained. Brief chapters describing Short Center Drives and Group and Individual Drives are included in the new matter. Belt users, even though possessing the previous edition, will find its worth while to send for this new edition.

Chemical Testing in Mill Control*

By Jessie E. Minor[1]

The papermaker of fifty years ago had to begin his training in childhood because he had to be a stoker, a beaterman, a machineman, a finisher and a packer. The general industrial developments of the succeeding period brought papermaking forward to one of the major industries of the country and the papermaker needed to become also a scientist dealing with physics, chemistry, electricity, mechanics, water purification, etc. This was too much for one man's lifetime so the chemist and the engineer arrived. The engineer soon became and remained and important part of the operation. The chemist who went into a mill with full training as a chemist still required considerable training in papermaking before he was ready to cooperate intelligently in the operating policies of the mill. Look around among the men you know who have started in papermills as chemists and note the diversity of developments. They have evolved into everything but chemists, all the way from a sort of beaterroom foreman taking care of details of orders from the papermaker or a laboratory technician running countless routine physical tests to superintendents, managers, technical salesmen and presidents.

Of all the men who have started in papermills as chemists, how many have remained for any length of time as chemists, studying the chemical reactions and the chemical properties of the materials involved in the papermaking process,—Can't you count them on one hand?

One reason for this is that the chemistry of cellulose is complex and has not yet been solved, the chemical reactions during the papermaking process are interrelated with the mechanical operations and the physical properties of the finished papers appealed to the buyers much more than the chemical properties. And so, in the recent period of great scientific development in the industry the so called chemist has worked in laboratories equipped with hand-sheet-making and physical testing instruments.

But the spur of competition is now forcing the industry to take another step forward and manufacturers and buyers are developing an increasing interest in the chemical changes at every step of the process as well as during the life of the paper and are asking that it be controlled by a chemist who concentrates much attention on chemical reactions.

Rosin Sizing Control

First in the list of chemical tests which have been found to be of value in controlling the quality of paper, both because of its importance and because it has been developed in a form which is convenient and understandable by mill management, is the pH test. If I had occasion to talk with a mill manager who knew nothing of chemical control and who wanted a better control of his process, I would be sure to recommend that he begin with pH testing. The working out of this test belongs to another paper than mine on this program.

The chemistry of rosin sizing has long attracted attention and has had much research study but we do not understand it very clearly even now. We are still asking why rosin size holds in one run of paper and gives a waterleaf sheet in another. And some mills have still to learn that dumping more size in the chest makes the matter worse.

If I should meet sizing difficulties in a mill, I should be inclined to get the mill water and the beater waters and study their relation to rosin size and alum for clues. When we add to a rosin milk, drop by drop with stirring, from a solution of alum, we get at first no effect, then increasing opacity which grows greater until finally curds begin to separate. If we stop at that point and let it settle, we will have curds at the bottom and weaker milkiness above. If more alum is added and settled, finally a clear watery liquid will rise above the curds of rosin and alum. If instead we had added the alum to a solution of pure soda ash or caustic without any rosin, it would have passed through the same stages of first the clear solution, then increasing milkiness and finally flocs of alumina separating. But in this case considerably more alum was needed for curds than in the case where rosin was present. Also, if mill water is used, or if definite quantities of impurities as lime, iron or other salts are added, then the alum is curdled much more easily than when pure distilled water is used and the curds are much coarser. This usually gives a working clue to the difficulty. The remedy is too individual for general statements.

The sizing effect on a sheet of paper depends on depositing the rosin on the fibers in thin layers, possibly only over the ends of capillaries, but in any event so as to stop the flow of water through the capillaries. And since this rosin has great power of drawing oxygen from the air and using it to destroy the fiber strength, it is important that the sizing be done with the minimum of rosin. Ideal sizing occurs when the alum is just enough to curdle slowly the alumina and rosin out of the solution at the temperature of the beater and with the help of the attraction of the fibers. The amount varies with every mill and with every type of water and furnish. If not enough alum is used the liquid is alkaline and the rosin is pulled away from the fiber by the alkali of the size and drains away in the back-water and poor sizing results. If too much alum is used the liquid is acid and the sizing effect may be good but instead of having the neutral, harmless, adhesive alumina flocs to cement the fiber and rosin together, the bond is made by the ions of aluminum with their positive electrical charges and these create acid conditions in their vicinity and altogether are quite harmful to the life of a paper.

The purer the water of the beater is, the wider is the range of probable good sizing with slowly formed fine flocs. Impurities leave a narrower margin between the alum required for the first formation of floc and the amount which gives coarse flocs which are partly lost by suction and partly act as fillers in certain large pores but leave countless small pores open for water penetration. It is quite possible for a bond paper to have 3 or more percent of rosin size held in the paper and still be a waterleaf sheet merely because the chemical reactions which give spreading of rosin were not properly controlled.

Oeman, a Swedish author, has given considerable study to the conditions which make for the best spreading of this rosin while passing over the driers. He showed that in order to set the rosin on the fibers the paper should reach a temperature of about 160 deg. F. while if still contains 50 per cent of its weight in water. At that temperature rosin begins to melt slightly and if sufficient moisture is present to allow the free movement of rosin particles and the aggregates are not too coarse, good sizing will result. Too long heating at the melting temperature will again injure the sizing effect.

Bleaching Control

Bleaching operations require considerable control but chemists still disagree as to what reactions occur and tempt us to throw up our hands and do anything that will give a white color and leave the fibers strong enough to go over the wire. There are, however, a few points on which our chemistry does seem positive. Acid bleaching is the most effective in removing color having the combined effects of acid and bleach and it is perfectly safe if it is not continued too long. But after the color is gone the bleach works on the fiber strength. Neutral bleaching exhausts even more rapidly than acid bleaching and is said to be more dangerous than when slightly acid with the line between removing of color and

* Presented at the Interstate Meeting of the Paper Technologists Club, Kalamazoo, Mich., May 23, 1931.

[1] Member TAPPI, chemist, Rag Content Paper Manufacturers, Springfield, Mass.

destroying of fiber less clearly outlined than with acid conditions. Alkaline bleaching is quite in favor for wood pulp because it works slowly and mildly and the weakening from oxycellulose is less apparent than with acid bleaching.

Wood pulp bleaching is for the purpose of removing the residues of woody tissue within the fiber and this is best served while the pulp is swollen in alkaline waters. Rag bleaching is mainly for the removal of textile dyes and is most satisfactorily done in the slightly acid condition where the fiber walls are compact and not easily penetrated. Excess alkalinity leaves fibers which go too slow on beating. Excess acidity leaves fibers which easily break from brittleness.

Strength Properties

Paper strength is partly related to fiber strength, partly to the maintenance of that strength during the operation and partly to formation, sizing, etc. With wood fibers the margin between the conditions which will remove the woody tissue and which will injure the fibers is quite narrow and calls for careful control. Buyers of wood pulp should be on the lookout for looseness there. With rags the margin of safety is much wider but it also may be overstepped. There is little opportunity of weakening a fiber strength without changing its chemical reactivity so we may follow strength by chemical reactions as well as by physical tests, but chemistry has been so slow in developing that rags are still purchased on judgment and wood pulp on judgment plus hand sheet tests.

Viscosity and Alpha Tests

During the war the importance of strong cloth for aeroplane wings stimulated research which gave us the test of viscosity of cuprammonium solution and since then the needs of the rayon industry made popular the alpha content test. Both tests were cumbersome and made progress slowly but have proven their worth.

Viscosity is a measure of the average length or bulk of the chain molecules in the fibers and registers a relative loss for any operation which weakens the fibers. Textile research has repeatedly shown that the same loss of strength always corresponds to the same loss of viscosity. Papermill studies made so far in both wood and rag mills confirm this finding. When applied to finished papers, the viscosity test indicates the quality of the fibers and the amount of the general strength which may be accredited to sixing, formation, etc., but it is not a direct measure of paper strength. From the standpoint of a paper buyer, the test is not likely to attract much attention and its real place will probably remain in mill control where it gives a direct indication of the quailty of the raw material and the effect of each operation on that strength. This mill value has been advocated by the Forest Products Laboratory of Canada and by the Hammermill Paper Company laboratory and is being confirmed in rayon and textile laboratories and in all of the larger rag paper mills.

Alpha content in a wood fiber is an indication of the extent to which the woody tissue has been removed and the purification accomplished, but there is a balance of conditions beyond which it is not wise to push the purification of pulps by present methods. Wood pulps of 94 to 98 per cent alpha content are made but they are suitable only for esterification and the best alpha pulp offered for papermaking varies from 90 to 92 per cent with ordinary wood pulps running usually around 85 per cent. Some pulp makers believe that the presence of a certain amount of hemi-cellulose material is of distinct advantage in fibers and it should not be removed. However, the high alpha content of the pulps of the Brown Company give them increased flexibility and other favorable properties. For pulps of alpha content between 70 and 90 per cent, the strength of the wood fiber is fairly well indicated by the alpha content test.

One difficulty in interpretation of the alpha content test or in comparing the alpha contents of different types of fibers lies in the fact that not only the quantity of alpha portion but its quality may vary. With good rag stock which is relatively strong you may cause considerable damage before any difference in alpha content is apparent. Also in the rag boiler process you may have a combination of dissolving out the non-alpha portions formed during textile life and the formation of non alpha material by faulty treatment. It is also possible to find two wood pulps which have approximately the same alpha contents but if the alpha pad is subjected to a second treatment with 17½ per cent caustic, one will show a decidedly greater loss than the other indicating that with one the line of demarcation between alpha and non-alpha portions was nearer the bulk of the fibers than with the other. Two wood pulp samples recently examined in our laboratory showed for the alpha content after the first operation 89.50 and 90.55 per cents and after the second operation they showed 87.27 and 53.35 per cents actually reversing the order of the first tests.

Also if the viscosity of the cuprammonium solution is determined on the stock and on the alpha pad it will be found that the per cent retention of this viscosity figure varies widely. One set of such figures varies from 31 to 78 per cent retention of viscosity after the alpha treatment.

The soda soluble test was originally applied to a boiling solution of caustic of a little more than 7 per cent but is now used for any strength of boiling alkali. Its indications are of the same order as those of the alpha test which uses the stronger alkali in the cold though the figures do not entirely check and it is probably a little less accurate and more difficult to check but gains in ease of manipulation.

The German textile laboratories use what they call a boil-off number in which they subject the fibers to boiling in 3 per cent alkali and determine the loss of weight. They follow this test with the permanganate number or the amount of that reagent required to destroy the oxidizing power of the extract.

This test has many advocates. One rather complete research when plotted indicates that while viscosity figures form a curve parallel to the strength curve, the permanganate number forms a straight line which increases regularly with the extent of acid degradation. With oxygen consumption the relation is not so simple, but suggests the same thing.

Copper Number

Copper number measures fiber degradation from the amount of oxidizable material which it possesses and, while the viscosity and alpha contents fall with increasing degradation, the copper number rises. For acid attack on fibers it increases very regularly and is said to increase by 50 per cent when the time of attack is doubled and to increase by a little over 1 per cent when the temperature is raised 10 deg. F. Copper number in itself is not an indication of weakness and if the material is treated with hot alkali the copper number is removed though the fiber strength is not restored. We cannot say that copper number is a sign of weakness for the material in the fiber which gives the copper number may have no effect on the constituents of the paper which is true of some of the hemi-celluloses of wood, but if that copper number is increased due to any operation or exposure of paper, we may be reasonably certain that the operation or exposure has injured something there.

In my opinion, the copper number is the most versatile of tests for special problems. For instance, a discoloration that does not show an increase of copper number is probably not due to age, a watermarked portion that shows a higher copper number than the rest of the sheet has probably been made by a heat or chemical process and not by wet pressing. All sorts of odd tests can be developed from the various indicators of the pH equipment and the copper number test applied qualitatively or quantitatively.

TAPPI Delaware Valley Section

The next meeting of the Delaware Valley Section of the Technical Association of the Pulp and Paper Industry will be held at the Engineers Club, 1317 Spruce Street, Philadelphia, at 7 p.m. November 12, 1931. The principal paper will be read by Harvey P. Cannon of the Container Corporation of America who will discuss pulp testing.

Current Paper Trade Literature

Abstracts of Articles and Notes of Papermaking Inventions Compiled by the Committee on Abstracts and Bibliography of the Technical Association of the Pulp and Paper Industry

Clarence J. West, Chairman

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Machinery

Rubber Covered Rolls in the Paper Industry. W. E. Brown. Pulp Paper Mag. Can. 31, 737, 750-754 (June 19, 1931).—A discussion of the use and abuse of rubber-covered rolls, with suggestions as to the ways of eliminating wear and tear and getting maximum service out of the rubber covers.—A.P.-C.

Duo-Wear Fourdrinier Wires. Roger G. Edwards. Paper Mill 54, No. 26, 5, 18-19 (June 27, 1931).—A discussion of the early stages of development, early trials on paper machines and present performance of Duo-Wear fourdrinier wires in which a number of stainless steel warp wires are woven at equal intervals (from 1 in 7 to 1 in 11 warp wires) with bronze warp wires and brass shute wires.

Suction Press Rolls. P. M. Foster. Paper Trade J. 92, No. 21, 43-44 (May 21, 1931).—A discussion of the fundamental principles underlying the use of suction press rolls in the modern fourdrinier and cylinder machines, bringing out their advantages over plain presses.—A.P.-C.

Paper Machine Wires and Felts. H. L. Muller. Papeterie 53, 750-761 (June 25, 1931).—Examples are given to show how to calculate the tension in paper machine wires and felts.

Proper Care of Rubber Covered Press Rolls. G. Elmer Emigh. Paper Trade J. 92, No. 23, 41 (June 4, 1931).—A brief discussion of the care required to obtain long runs from rubber-covered press rolls and also long felt life.—A.P.-C.

The Use and Abuse of Paper Makers' Felts. William U. Hanke. Paper Mill 54, No. 23, 12, 48-50 (June 6, 1931); Paper Trade J. 92, No. 24, 79-81 (June 11, 1931).—A brief discussion of the selection of the proper grade of felt and of the chief mechanical and chemical abuses to which they are subjected in the paper mill. —A.P.-C.

Paper Machine. J. W. Grant. Brit. pat. 339,370.—A machine for glazing paper has twin glazing cylinders, with means for feeding the web to either as required, the other cylinder being inoperative to allow resurfacing, particularly by grinding it in situ.—A.P.-C.

Chilled Iron Calender Rolls. Joseph Stuart. Paper Mill 54, No. 23, 14, 44, 46 (June 6, 1931); Paper Trade J. 92, No. 24, 81-82 (June 11, 1931).—A brief explanation of what chilled iron is with an outline of some of the methods and difficulties connected with the manufacture of chilled iron rolls, and of the continued efforts of the roll makers to improve their product to turn out calenders which will meet the ever increasing severity of the service to which they are subjected in paper making. —A.P.-C.

Two-Motor Drive for Calenders. R. Schnitzer. Industrie Papetere 10 191-197 (May, 1931).—A brief description of the two-motor calender drive and its operation.

Device for Varying the Rate of Regulation of the Synchronizing Mechanism of Sectional Paper Machine Drives. Société Anonyme des Ateliers de Constructions Méchaniques Escher Wyss et Cie. Fr. pat. 699,963 (Aug. 2, 1930).—The sensitiveness of the speed regulating mechanism of sectional electric paper machine drives varies with the speed of operation of the machine. Provision is made to adjust the sensitiveness of the regulating mechanism, so that it can be made approximately constant for any operating speed.—A.P.-C.

Paper Machine Drive. T. D. Nuttall and Bentley and Jackson, Ltd. Brit. pat. 340,087.—The different sections are driven by similar driving units comprising V-belt speed-varying means acting through clutches and gearing. Small speed variations are effected by increasing the width of the driven pulley and simultaneously decreasing the width of the driving pulley, or vice versa. The adjustment of both pulleys is effected by the operation of a single hand wheel. The more substantial speed variations are obtained by proportioning the diameters of the driven rolls ot the individual sections or of the gearing used for driving them.—A.P.C.

Electrifying Paper Machine Drives. D. R. Shoults. Paper Trade J. 92, No. 18, 28-32 (April 30, 1931).—A discussion of requirements and developments more particularly as regards the replacement of mechanical drive by single motor electric drive. —A.P.-C.

Method of Preparing Watermaking Plates. Howard Brown assignor to Southworth Co. U. S. pat. 1,796,080, (March 10, 1931).—The watermarking plates are mounted on a marking roll, which in turn is mounted adjacent a bed roll having a smooth hard surface. The rolls are rotated in contact with each other while applying substantial pressure.—A.P.-C

Machine for Dusting Old Papers, Rags and Similar Materials. Aeldert, Duesseldorf. Ger. pat. 508,356 (August 19, 1927).—The machine consists of a housing and a drum revolving within this housing, the surface of the drum being a screen. The housing has an outlet and inlet slot. A ventilator is provided which removes the air from the inside of the drum. The drum is provided with bolts which cause the old papers to be thrashed about and the feed of paper is continuous.—J. F. O.

Barking Machine. Anders Hansson, Vatgarde, Sweden. Ger. pat. 517,111 (May 4, 1929).—The barking machine is provided with knives or cutting steel fastened with holders within the drum, in which the logs are fed by feed rolls.—J. F. O.

Barking Machine. Axel Gustaf Johansson, Waplan Sweden. Ger. pat. 518,133 (Jan. 29, 1929).—The invention concerns itself with the barking machine consisting of a revolving drum, provided around its circumference with rotating rings and rollers or gear which impart the power necessary to rotate the drum. —J. F. O.

Barking Machine. Zellstoffabrik Waldhof and Friedrich Baumbach. Ger. pat. 519,099 (Aug. 10, 1928).—The invention concerns itself with a barking machine in which the log to be barked is pressed against the barking disc, whose axis of rotation is perpendicular to the axis of the log.—J. J. O.

Arrangement on a Barking Drum. John Stridlund, Tofte, Norway. Ger. pat. 516,585 (June 13, 1928).—The drum rotates so that a part of it is submerged in water, and provided within the drum are lugs which carry the logs up and then release them. The drum is supported and rotated by means of two endless chains.—J. F. O.

Device for the Removal of the Liquor and Leading Away

of the Pulp Dumped from a Revolving Digester. Société Anonyme des Papiers Abadie Paris, Ger. pat. 505,083 (June 12, 1929).—Underneath the digester and at a certain distance from its farthest extremity is a grating in the form described by the rotating digester. A scraper is fastened to the digester and is diametrically opposite to the place where the digester is filled. This scraper removes the pulp from the grating where the liquor has been drained off.—J. F. O.

Process for the Washing out of Cooking Liquids from Pulp Digesters. E. Morterud Moss, Norway. Nor. pat. 49,754 (Aug. 17, 1929).—The washing liquid used is at a lower temperature than that prevailing in the digester and is added at the top of the digester simultaneous with an indifferent gas during the wash period and kept at a constant or nearly constant pressure.—J. F. O.

Arrangement for the Storing of Half Dried Ground Wood, Pulp, or Similar Materials by Means of Conveying the Stock Through Pipes by Compressed Air. A Daninger, Steyrermuhl and A. Schuupler, Finn. pat. 13,090 (Dec. 7, 1928).—The stock which is blown to the upper part of the bin and distributed by means of a special nozzle can be removed from below by means of a screw conveyor or a rake arrangement or some similar device to the place of consumption or can even be transported by the compressed air method. It is also possible to remove the stock from the bottom of the bin in a semi-liquid condition by means of a hose, trough or pump. A bleach liquor can be added to the stock while it is conveyed to the storage bin or it can be added to the stock already in the bin.—J. F. O.

Apparatus for the Removal of Stock from Stock Pits. A Bol. Svenska Maskinverken, Sodertalje. Swed. pat. 70,317 (March 6, 1929).—The apparatus consists of a bucket elevator which can be operated the length of the stock pit, and a transverse conveyor spiral arranged at the lower end of the bucket elevator to move the stock sideways to the elevator. A rake conveyor is also arranged which feeds the stock to the spiral.—J. F. O.

Arrangement for the Joining Together of Wires Used in Pulp and Board Machines. E. Orrmell, Kramfors. Swed. pat. 70,786 (Feb. 1, 1928).—The seam or the seam wires are fastened mainly at the outer side of the wire, so that a completely smooth surface comes in contact with the suction and the rolls on the machine side.—J. F. O.

Heavy Grinding Machine for Paper Rolls. Weil, Zellstoff Papier 11, 5, 160 (May 1931).—An unusually large grinding machine is described, built by the Naxos Union at Frankfurt a. Main, which will grind rolls with a diameter of 1200 millimeters and 10 meters long and weighing 40 tons. A 25 horsepower motor is used to turn the roll, and a 4 H. P. motor for the grinding apparatus.—J. F. O.

Drive Arrangement for Several Shafts of a Paper Machine. A. G. der Maschinenfabriken Escher Wyss & Co. Zurich. Aust. pat. 121,124 (Jan. 15, 1929).—Each shaft is driven by a single reduction gear unit which can be regulated and is run at a constant speed. The reduction gears form a unit completely independent from each other in relation to its drive and each unit obtains its power from a special motor running at a constant speed.—J. F. O.

Screen. Heinrich Burckhardt, Wels. Aust. pat. 121,143 (Oct. 15, 1929).—A cylindrical skeleton revolving around a longitudinal axis inclined to the horizontal is covered in its length by support wire and stock screen. The screen increases in mesh from inlet to outlet.—J. F. O.

Arrangement for Hindering the Sheet From Breaking. Hugo Konig, Steyrermuhl. Aust. pat. 121,144 (Sept. 15, 1930).—The sheet is led over a device located at desired place which sets into action a separating device (water squirt) when a tear occurs. The device is placed immediately behind the couch roll or one of the wet presses and divides the sheet into several longitudinal strips.—J. F. O.

Process and Device for the Protection of the Wire on a Paper Machine when the Sheet Breaks Between the Couch Roll and the Press Felt. Fritz Moufang, Oberhessen. Ger. pat. 511,551 (March 28, 1929).—When the stock begins to pile up on the top couch roll, the pressure relation so influences an air line that an automatic shutting down of the wire section takes place. The shutting off of the suction is also automatically controlled. —J. F. O.

Moistening Arrangement. Gustav Schlick, Langebruck. Ger. pat. 511,699 (March 30, 1930).—Addition to Ger. pat. 510,274. Numerous sprays are arranged on a device fastened tangentially to the cylinder.—J. F. O.

Slitter Arrangement. Goebel Akt. Ges. Darmstadt Ger. pat. 511,770 (July 20, 1929).—Addition to Ger. pat. 474,161. The knife holders are arranged on one or more axis capable of rotation. —J. F. O.

Differential Drive for Multiple Motor Drive for Paper Machines. Siemens-Schuckert-Werke A. G. Berlin. Fin. pat. 13,095 (May 3, 1928).—The differential drive is built into a conical disc mechanically connected to its middle part, which serves in connection with a conical disc driven with the actual or desired speed, as the regulatable transfer drive for the setting of the speed relations.—J. F. O.

Arrangement for the Drive of a Paper Machine in Which Each Single Group Can be Set Independent of the Others. Siemens Schuckert Werke, A. G. Berlin, Nor. pat. 48,721 (Aug. 8, 1928).—It is sometimes desirable to stop the other single units of the paper machine with the exception of the couch section.—J. F. O.

Process for the Recovery of Fiberous Substances and Materials in Suspension in the White Water and Other Sources in Paper, Pulp, Ground Wood and Board Manufacture. Georg Watzinger, Steyermuhl. Aust. pat. 120,610 (Jan. 15, 1930).—Gas under pressure is dissolved or emulsified in the waste water to be cleared, thereby relieving the suspension by separating the suspended matter into a number of small bubbles which carry the fibers and suspended matter to the top of the liquid. The production of the liquid gas mixture takes place in a mixing device, a pump provided with a gas inlet, and the suspension in the clarifying tank being removed at the top of the tank.—J. F. O.

Device for the Prevention of the Carry Over of Foam in Evaporators by a Sudden Decrease in Pressure of the Steam. Ger. pat. 516,365 (May 22, 1927).—A thin walled cylindrical pipe is placed within the evaporator, the pipe having small holes so arranged that the steam passing through strikes the opposite side of the wall which is soiled at that point. The difference of pressure on both sides of the perforated wall is kept constant by a special arrangement.—J. F. O.

Device for the Evaporation and Thickening of Liquids by Simultaneous Use of a Thin Layered and Multiple Effect Vacuum Evaporation. Karl Fried, Vienna. Ger. pat. 517,176. (Jan. 8, 1928).—J. F. O.

Device for Fastening and Setting the Top Circular Knife for Slitters. G. Soiess, Leipzig. Swed. pat. 70,660 (Sept. 9, 1929).—The top circular knife is arranged eccentrically rotating about an axis parallel to the axis of the lower circular knife. Brushes are also fastened to the axis of the top circular knife so that they revolve simultaneously with it.—J. F. O.

Arrangement for the Wet Presses for Paper and Carton Machines. Firma J. M. Voith, St. Polten. Aust. pat. 120,241 (July 15, 1930).—The invention deviates from the customary arrangement of the third reversable press with a top roll having an elastic covering, mostly rubber, and an unelastic bottom roll generally of stone or chilled casting; in which the paper comes in direct contact and the wire and felt marks are thus evened out. The elastic top roll is provided with a wet felt and the feeding of the paper to this press is conducted by means of compressed air.—J. F. O.

Device for the Control of the Main Motor and the Auxiliary Motors for driving a paper machine, calenders and Similar Machines. Siemens Schuckert Werke Akt. Ges. Berlin. Ger. pat. 513,800 (Feb. 3, 1925).—J. F. O.

Multiple Motor Drive for Machines with Several Sections, Especially Paper Machines. Akt. Ges. Brown Boveri & Cie, Baden, Switzerland. Ger. pat. 519,714 (Feb. 19, 1928).—J. F. O.

Device for Cutting up Waste Paper. Jagenberg-Werke Akt. Ges. Dusseldorf. Ger. pat. 510,979 (Aug. 17, 1928).—The apparatus consists of an exhaustor whose suction brings the paper to be cut up in contact with a group of knives which are located on the shaft of the exhaustor.—J. F. O.

Arrangement for the treatment of Fiberous Materials with Liquids. Compagnie Nationale des Matieres Colorantes & Manufacturers de Produits Chimique du Nord-Reunies. Ger. pat. 512,715 (May 24, 1928).—The invention concerns a device for the continuous treatment of fiberous materials with liquids in a container under the absence of air. Preheater and supply tanks are separate and enclosed. The invention is characterized in that the pre-heater and several of pipes of the pre-heater, conducting the dye liquor, are arranged in water baths.— J. F. O. J. F. O.

Power

Improving the Evaporator for Industrial Use. R. J. Gaudy. Power 74, no. 5, 164-165 (Aug. 4, 1931).—A description of a new type of evaporator with continuous circulation, high heat transfer and proportional filtration which offers a workable solution to the closed water circuit behind back pressure turbines and as an isolated industrial process steam generator in paper, rubber, food products and plants where steam or condensate losses impose avoidable costs.—C. J. W.

The Application of Electrical Power in Paper Mills. James R. Happer. Proc. Tech. Sect. Paper Makers' Assocn. Gt. Brit. Ireland 11, Pt. 1, 164-179 (1930).—The a.c and d.c. systems are compared. The placing of a beater-drive motor inside the beater roll has worked out very satisfactorily. The merits of steam versus electricity are discussed.—A. P.-C.

Fast's Flexible Couplings. A. C. Nielson Co.; and F. J. Timmerman and R. J. Cunningham. Paper Mill 54, No. 19, 10-21 (May 9, 1931).—A discussion of the performance of and benefits derived at the Northern Paper Mills' plant from the installation of Fast's flexible couplings, more particularly as regards elimination of vibration when operating paper machines at high speeds.—A. P.-C.

Dayton Cog Belt Drive. T. C. Davis. Paper Mill 54, No. 25, 12, 26 (June 20, 1931).—The development of the V-belt, and more particularly of the Dayton cog-belt, is outlined, together with the principles underlying its construction and its performance.—A. P.-C.

Some Considerations Affecting Efficient Power Transmission. Arthur R. Glithero. Paper Makers' Monthly J. 69, 192-193 (May 15, 1931).—An outline of fundamentals of good belt drives.—A. P.-C.

Rolling Along—on anti-Friction Bearings. S. M. Weckstein. Pulp Paper Mag. Can. 31, 760-762 (June 25), 787-789 (July 2, 1931).—A discussion of the advantages of the use of roller bearings in pulp and paper mill machinery.—A. P.-C.

Recent Applications of Roller Bearings to Grinders. Anon. Papeterie 53, 437-438 (April 10, 1931).—A brief discussion of the advantages of roller bearings for mounting wood grinders.—A. P.-C.

Transmission of Power. W. J. Coppock. J. E. Rhoads and Sons, Philadelphia, Pa. Paper Mill 54, No. 19, 12-16, 28 (May 9, 1931).—A discussion of the properties and performance of various types of belting, bringing out more particularly the superiority of Rhoads' Tannate Belting.—A. P.-C.

Friction Losses in Cast Iron Pipe Carrying Paper Stock. Frank Forrest and G. A. H. Grierson. Technical Association Papers XIV, 259-261 (May, 1931); Paper Trade J. 92, No. 22, 39-41 (May 28, 1931).—A description of tests carried out in 1927 at the Iroquis Falls, Ont., mill of the Abitibi Power and Paper Co. The friction losses observed with water, 3 per cent groundwood and 3 per cent sulphite, through a 20-foot length of 8-inch pipe are plotted against rate of flow.—A. P.-C.

Pumping High-Density Stock. W. P. Gargan. Paper Mill 54, No. 18, 12, 27-29 (May 2, 1931); Paper Industry 13, 215-217 (May, 1931).—A brief outline of the development of pump design for handling high-density stock.—A. P.-C.

Valve Equipment. Reginald Trautschold. Paper Trade J. 92, No. 20, 38-44 (May 14, 1931).—A brief discussion of the quality requirements of valves in pulp and paper mills.—A. P.-C.

Good Steam Trap Practice Pays. Reginald Trautschold. Paper Trade J. 92, No. 22, 24-30 (May 28, 1931).—A discussion of the proper selection of steam trap equipment to suit operating conditions.—A. P.-C.

Pneumatic Transportation in the Pulp and Paper Industry. H. Dietrich. Papeterie 53, 765-775 (June 25, 1931).—A brief outline of the advantages of this form of transportation of materials in mills and yards.—A. P.-C.

Air Preheaters in Paper Mills. Reginald Trautschold. Paper Trade J. 92, No. 24, 56-64 (June 11, 1931).—Attention is directed to the modern air preheater equipment available for flue-gas heat salvage, and a few specific references are given to show how these devices are employed and what they effect in the way of heat conservation and fuel economy in power plant service in the paper industry.—A. P.-C.

Steam Turbine. V. L. Sanderson. The Terry Steam Turbine Co. Paper Mill 54, No. 18, 2, 24 (May 2, 1931).—A brief discussion of the applications of steam turbines in paper mills, particularly for driving the paper machines.—A. P.-C.

Demand for Electricity Forces Paper Mill to Use Coal. Anon. Pulp Paper Mag. Can. 31, 627-629 (May 21, 1931).—A description of the new pulverized-coal fired steam plant of Canadian International Paper Co.'s Gatineau mill.—A. P.-C.

Waste

Waste Committee Annual Report. White Water Utilization. C. M. Baker. American Paper and Pulp Association, New York. Technical Association Papers XIV, 266 (May, 1931); Paper Trade J. 92, No. 25, 39 (June 25, 1931).—A brief discussion and summary of the findings of the sub-committees. Pulp Mills. Russell T. Mann. Cherry River Paper Co., Richwood, W. Va. Technical Association Papers, Series XIV, No. 1, 266-267 (May, 1931); Paper Trade J. 92, No. 25, 39-40 (June 18, 1931).—Methods and procedure at present in use for white water recovery in pulp mills, the results obtained and difficulties encountered in the re-use of white water are outlined. Groundwood and Newsprint Mills. R. J. Schadt. Hawley Pulp and Paper Co. Oregon City, Ore. Technical Association Papers, Series XIV, No. 1, 267-268 (May, 1931); Paper Trade J. 92, No. 25, 40-41 (June 18, 1931).—Methods at present in use for white water recovery in groundwood and newsprint mills are outlined, together with the results obtained, difficulties encountered, and lines of further research which should be followed. Kraft Mills. D. M. Wadsworth. Bogalusa Paper Co., Bogalusa, La. Technical Association Papers, Series XIV, No. 1, 268 (May, 1931); Paper Trade J. 92, No. 25, 41 (June 18, 1931).—Methods used for white water recovery in kraft mills, results obtained and difficulties encountered are outlined. Fine Writing Paper and Tissue Mills. C. M. Baker. Technical Association Papers, Series XIV, No. 1, 268-269 (May, 1931); Paper Trade J. 92, No. 25, 41-42 (June 18, 1931).—An outline of methods at present in use, results obtained and difficulties encountered. Paper Board Mills. C. M. Baker. Technical Association Papers, Series XIV, No. 1, 269-270 (May, 1931); Paper Trade J. 92, No. 25, 42-43 (June 18, 1931).—An outline of methods at present in use, results obtained and difficulties encountered. Straw Board Mills. W. W. Galloway. Hagar Straw Board and Paper Co., Cedarville, Ohio. Technical Association Papers, Series XIV, No. 1, 270 (May, 1931); Paper Trade J. 92, No. 25, 43 (June 18, 1931).—A brief

outline of the various lines of investigation being followed at the present time regarding fiber recovery and elimination of stream pollution. Chlorine and Other Methods of Slime Control. L. M. Booth. Booth Chemical Co., Elizabeth, N. J. Technical Association Papers, Series XIV, No. 1, 270-272 (May, 1931); Paper Trade J. 92, No. 25, 43-45 (June 18, 1931).—The information obtained in replies by 80 mills to a questionnaire regarding methods of slime elimination being used is presented and discussed. By far the greatest number of mills carrying out slime control use chlorine for this purpose; but the use of chemicals other than chlorine (bleach liquor, "slime remover," soda ash, copper sulphate) has shown favorable results in the limited number of cases reported (80 use chlorine and 14 use other chemicals). Effect on Sheet Properties. E. R. Schafer. Forest Products Laboratory, Madison, Wis. Technical Association Papers, Series XIV, No. 1, 272 (May, 1931); Paper Trade J. 92, No. 25, 45 (June 18, 1931).—A progress report on experimental work at present under way. The results obtained on book paper indicated a decreasing retention of clay with increasing proportion of white water, ranging from 66 per cent with all white water to 40 per cent with all fresh water; there was also a decrease in the density,gloss and opacity, in amounts varying from 10 per cent to 30 per cent between the two samples; on the other hand there was an increase of from 30 per cent to 50 per cent in the bursting, tensile and folding strengths; the printers' ink absorption and the color were practically unchanged. In the case of newsprint the trends were not so pronounced, the clay retention remaining practically constant regardless of the volume of fresh water used and the properties of all the papers being practically alike. Wastes from De-inking Old Papers. C. C. Irving. Falulah Paper Co., Fitchburg, Mass. Technical Association Papers, Series XIV, No. 1, 273 (May, 1931); Paper Trade J. 92, No. 25, 46 (June 18, 1931).—A brief review of methods at present being used for recovery of wastes from the de-inking of old papers, of the results obtained and of the possible uses of the recovered wastes.—A. P.-C.

Controlling Paper Mill Wastes With Chlorine and Ammonia. Brian L. Shera. Paper Trade J. 92, No. 21, 55-57 (May 14, 1931). —A discussion showing the wastes produced by slime in pulp and paper mill fresh water, white water and stock systems. Slime already present can best be eliminated and development of fresh slime prevented by the judicious use of chlorine alone or, preferably, by the controlled addition of chlorine and ammonia to form monochloramine.—A. P.-C.

Miscellaneous

Pulp Slime, its Structure and Cause. T. D. Beckwith. Pacific Pulp Paper Ind. 5, No. 8, 23-25 (July, 1931).—The use of a closed system in water circulation for the purpose of water conservation, while laudable from the point of view of economy, embodies certain difficulties. It does not allow micro-organism accumulations, such as pulp slime, to be flushed out readily and continuous operations do not allow periods when equipment may be cleaned properly. Pulp slime proliferates therefore with greater rapidity, unless adequate measures for its ocntrol are instituted. The author proves microscopically that pulp slime is caused by bacteria, the source of which is the water supply of the mills. Hence, the logical point of attack upon it is treatment of water and intensive studies of chloramines as the most effective agents for slime elimination have already been made. Complete data will be published at a later date.—C. J. W.

Measuring Apparatus for Round Wood. H. Aursand, Namos. Nor. pat. 47,978 (Feb. 16, 1929).—The log of wood being measured moves forward by its own weight under a roll which is so designed that by means of electrical resistances set up, the diameter, length and number of logs are all automatically recorded.—J. F. O.

Concerning Acid-Proof Paints for Iron and Concrete. K. Bittner, Papier-Fabr. 29, No. 15, 293 (April 12, 1931.)—In general there are two kinds of paint layers necessary, a ground coat which is tenacious and the acid-proof coat which must hold fast to the ground coat. Sometimes a suitable putty or cement is also used. Because of faulty methods of testing, wrong judgments are frequent. Sharp corners are very difficult to coat. Coating materials which will stand for 30 hours in a 30 per cent sulphuric acid at 20° without softening or dissolving are O. K. Before any judgment is passed the coating must be completely hardened.J. F. O.

Construction Materials.. J. D. Miller. Paper Mill 54, No. 19, 10, 27 (May 9, 1931).—A brief outline of the scope of the activities of the Materials of Construction Committee of TAPPI.—A. P.-C.

Non-Fibrous Raw Materials for Paper Making. Arthur C. Dreshfield. Technical Association Papers XIV, 196-201 (May, 1931); Paper Trade J. 92, No. 17, 50-54 (April 23, 1931).—Report of the Non-Fibrous Materials Committee of TAPPI covering developments, during 1930, of technical and economic importance concerning alum, glue, casein, chlorine, clay, lime, rosin, salt cake, starch and sulphur.—A. P.-C.

Chlorine and Bleaching Powder. Robert T. Baldwin. Technical Association Papers XIV, 201-202 (May, 1931); Paper Trade J. 92, No. 17, 54-55 (April 23, 1931); Paper Mill 54, No. 20, 18-19 (May 16, 1931).—A bibliography of 36 references on slime control in pulp and paper mills by means of chlorine and chlorine compounds.—A. P.-C.

Research and Lithographic Paper. Robert F. Reed. Pulp Paper Mag. Can. 31, 719-721 (June 11, 1931); Paper Trade J. 92, No. 24, 87-88 (June 11, 1931); Paper Mill 54, No. 27, 14-15, 28 (July 4, 1931).—A brief outline of the research on lithographic paper undertaken co-operatively by lithographers, paper manufacturers and dealers, machinery and ink manufacturers, and the U. S. Bureau of Standards, dealing in turn with misregister, creasing and scumming, paper and ink and paper and adhesives.—A. P.-C.

Industrial Paper Research Laboratories. Clarence J. West. Paper Trade J. 92, No. 19, 47-54 (May 7, 1931).—A list of industrial research laboratories in the United States of interest to the pulp and paper industry, giving addresses, personnel and nature of work undertaken.—A. P.-C.

Technician in the Paper Industry. Henry P. Carrouth. Technical Association Papers XIV, 257-258 (May, 1931); Paper Trade J. 92, No. 26, 46-47 (June 25, 1931).—An address outlining the part played by the technician in the development and progress of the paper industry within the last 15 years, and indicating some of the major problems remaining to be solved.—A. P.-C.

Chemist in Mill Control. Jessie E. Minor. Paper Mill 54, No. 27, 10, 23-24 (July 4, 1931).—An address dealing with chemical control tests in paper making.—A. P.-C.

Fundamental Research and the Paper Industry. T. Trevor Potts. Proc. Tech. Sect. Paper Makers' Assocn. Gt. Brit. Ireland 11, Pt. 1, 115-129 (1930).—A résumé is given of past fundamental investigations and suggestions are made of some problems for future study.—A. P.-C.

New Industry That Utilizes Large Quantities of Canadian Groundwood. N. MacKinon. Pulp Paper Mag. Can. 31, 733-735 (June 18, 1931).—A brief description of the Cornwall plant of Fibre Conduits Canada, Ltd., and of the uses of fiber conduit.—A. P.-C.

Utilization of French National Resources for the Manufacture of Paper and Board. Jean Laroche-Joubert. Industries Papetiere 10, 231-241 (June, 1931).—After a brief review of the production of paper in the French colonies and of the resources of France in paper making raw materials, the new Vierzon mill of the Bilescose company is described.—A. P.-C.

New French Groundwood Mill: "La Bilescose," at Vierzon. Anon. Papeterie 53, 414-426 (April 10, 1931).—An illustrated description of the mill.—A. P.-C.

Unique and Efficient Groundwood Mill in Switzerland. Anon. Pulp Paper Mag. Can. 31, 687, 708 (June 4, 1931).—A brief description of the mill of the Fabrique des Pâtes de Bois de la Doux, equipped with one grinder and one wet machine, both of the Kamyr type, and having a capacity of 7500 long tons of dry pulp per year. —A. P.-C.

Historical And Other Data Relating To Fourdrinier Paper Making Machines

1799—1931

Compiled by J. Wallace Tower[1]

1799

On January 18, 1799, the Government of France granted Nicolas Louis Robert a patent on a machine for making sheets of paper at very large size even twelve feet wide and fifty feet long. Robert was a machinist connected with Didot's paper mill at Essonnes. During this same year a working model of the machine was constructed, but its work was not fully satisfactory.

1801

Leger Didot of Essonnes, France, agreed to purchase this patent and model from Robert and accompanied by John Gamble, an Englishman, sailed for England. In England, Didot secured the aid of Bryon Donkin, a man of considerable mechanical skill, and by means of experiments and observations of the trio—Didot, Gamble and Donkin—the patent of Robert was perfected. On April 2, 1801, a patent was granted in England to John Gamble for an invention for making paper in single sheets without seam or joining, from one to twelve feet and upwards wide, and from one to forty-five feet and upwards in length.

1803

On June 7, 1803, the English Government granted another patent to John Gamble for improvement and additions to a machine for making paper in single sheets without seam or joinings, etc., and during the same year the first machine for making paper by machinery was successfully put in operation in "Frogmore Mill," Herts, England.

1804

Henry and Sealy Fourdrinier, stationers and manufacturers in England, purchased the interest of Didot and Gamble in the improved Robert machine. During this year, another successful machine, practically a duplicate of the first, was put in operation in "Two Waters Mill," Hertfordshire, England. This machine was run by Marchant Warrell who thus became in reality the first machine tender.

1806-8

Henry Fourdrinier was granted a patent in England on July 24, 1806, for "The Method of Making a Machine for manufacturing paper of an indefinite length, laid and wove with separate moulds." On August 14, 1807, an act of the British Parliament gave an extension of the patent rights obtained by the Fourdriniers. During the year 1808, John Gamble assigned to Messrs. Fourdrinier all his rights in the patents as extended by the Act of Parliament, thus making them the sole proprietors of the patents covering the only successful paper making machine in existence. So the machine invented by Robert, improved and promoted by Didot and Gamble, designed by Donkin and financed by the Fourdriniers came to be known and continues to be known as the Fourdrinier machine.

1812

Thomas Cobb took out a patent in England for covering the couch roll with a woolen jacket.

1817

John Dickinson patented in England the second press.

1821

John C. Phipps took out in England the first patent for a dandy roll for producing laid lines on paper.

1823

Steam cylinders for drying paper were first used by Thomas B. Crompton in England.

1826

Mr. Canson in England, applied suction pumps to the Fourdrinier machine to cause a suction underneath the wire on which the paper was formed, in order to assist in the removal of water.

1827

The first Fourdrinier paper making machine in the United States was imported by Henry Barclay. It was built in England by Bryan Donkin and had a width of sixty inches. This machine was installed in a mill in Saugerties, New York, and started up on October 24, 1827.

1828

The second Fourdrinier machine in America was installed in the mill of Joseph Pickering in North Windham, Conn. This machine was set up under the direction of George Spafford and started up early in the year.

1829

The first Fourdrinier paper machine to be built in America was constructed in the shop of Phelps & Spafford, now the Smith & Winchester Manufacturing Company in South Windham, Conn. This machine was installed in the mill of Amos H. Hubbard at Norwich Falls, Conn., and went into successful operation in May 1829. This plant was the first paper mill in Connecticut, having been founded in Colonial days, about 1768 by Christopher Leffingwell.

1829

John Dickinson secured a patent in England for reversing the paper before the second press so as to obtain an even sided sheet.

1830

A patent was taken out in England by Thomas Barratt for various improvements in the paper machine. He also introduced the tube rolls, the eccentric motion for the shake and a compensating reel frame for the dry paper.

1840

In this year Thomas Barratt introduced the idea of improving the drying on a paper machine by blowing jets of air against the paper on the drying cylinders.

1853

The first paper machine to go west of the Mississippi River was a Fourdrinier built for Samuel P. Taylor by Smith, Winchester & Co., at South Windham, Conn. The machine went by boat to Panama and was shipped on skids across the Isthmus. Then by schooners to Bolinas, near the mill, whence ox sleds hauled it along a mountain ridge and down to the site in Taylorsville, California.

1860

About this date Smith-Winchester & Co. built the first Jordan engine which they sold to Boswell Keene & Co. of East Hartford, Conn.

1862

The Harper Fourdrinier Machine was patented by James Harper of East Haven, Conn.

[1] Hardy S. Ferguson & Co. Engineers, New York.

1864

The first rubber covered bottom press rolls came into use. Prior to this time, the rolls were of wood, iron or composition.

1867

About this time chilled iron calender rolls came into use. Before then ordinary cast iron rolls were used. Prior to 1867 the widest machine was not over 100 inches and speed not more than 100 feet per minute.

1867-68

A machine in the Remington Mill at Watertown, N. Y. ran at 100 feet per minute.

1876

About this date Jouffray Cadet & Son of Paris, France, invented the cone pulley and bevel geared drive for operating paper machines. Later this drive was introduced in the United States by George E. Marshall of Turners Falls, Mass., who had obtained a U. S. patent for it. This drive has since been known as the Marshall Driving Train.

1879

The diaphragm screen was invented about this time by Edmund Victory, superintendent of the Remington Paper Company at Watertown, N. Y.

1880

At the Glatfelter Mill in Spring Grove, Penna., a Pusey and Jones machine having a trim of 94 inches ran at 200 feet per minute.

1887

Warren Curtis of the Hudson River Pulp and Paper Company prepared specifications for a machine to be placed in Palmers Falls Mill to have a wire 112 inches wide by 50 feet long, and 22—48 inch driers in two tiers. The machine was built by Pusey & Jones and designed to run at 250 feet per minute. It was installed in 1887 and 1888, and was the widest machine at that time. This machine is still in operation (early 1931) running at 490 feet per minute.

1889

Lloyd's Mill at Sittingbourne, England, a machine having a wire 120 inches wide by 40 feet long, and 20 driers ran at 270 feet per minute.

1890

Ontario Paper Company's mill at Glen Park near Brownville, New York, a Bagley & Sewall machine with an 86 inch wire ran at 325 feet per minute.

1892

Willamette Pulp and Paper Company at Oregon City, Oregon, a Bagley & Sewall machine ran at 480 feet per minute. Up to 1896 the widest machine was 160 inches and the highest speed run 500 feet per minute.

1896

Rumford Falls Paper Company at Rumford Falls Me., installed a machine built by Rice, Barton & Fales with a wire 162 inches by 60 feet, 3 presses and 24—48 inch driers. For several years this was the widest machine.

The first Millspaugh shower pipes were installed in a Fourdrinier machine of the Glens Falls Paper Mill Company at Glens Falls, N. Y.

1897

Mills at Glens Falls and Palmers Falls, N. Y., Berlin, N. H., and Oregon City, Ore., claimed to be running machines at 500 feet per minute.

1900

St. Regis Paper Company, Deferiet, N. Y., a 90 inch Bagley & Sewall machine ran at 525 feet per minute.

1902

Remington Martin Company Mill, Norfolk, N. Y., a 100 inch Bagley & Sewall machine ran at 535 feet per minute.

1903

Remington Martin Company Mill, a Bagley & Sewall machine with a 163 inch wide by 65 foot long wire ran at 460 feet per minute.

1904

Berlin Mills Company (now Brown Company), Berlin, N. H., installed four 164 inch Bagley & Sewall machines for making news print. These were the widest machines at this date.

1908

The first installation of a sectional electric drive was on a 112-inch Bagley & Sewall Fourdrinier machine in the plant of the Gould Paper Company at Lyons Falls, N. Y. This consisted in the removal of the mortise bevel gear with cone pulley intake drives and substituting individual variable speed, direct current motors. A spur pinion on the motor shaft meshed with a large gear on the indriving shaft. Each motor had hand operated rheostat controls.

1908

Late in December, the first Millspaugh suction couch roll for a Fourdrinier machine was installed in the mill of the Hammersley Manufacturing Company at Garfield, N. J. The machine had a wire 96 inches wide, 3 presses and 24 driers. A cycloidal rotary vacuum pump was used to create suction in the couch roll. Greaseproof paper was made.

1909

Minnesota and Ontario Paper Company's mill at International Falls, Minnesota—Two Pusey & Jones machines with 184 inch wires were installed. These machines were equipped with 60 inch diameter driers and was the first installation where driers of that size were used.

1909

On December 27, in the mill of the Cliff Paper Company at Niagara Falls, N. Y., the first Millspaugh suction couch roll to run on news print was started up. The machine had a wire 90 inches wide by 40 feet long, 2 presses and 16 driers.

1910

Very early this year compressed air was first used to handle the sheet from a Millspaugh suction couch roll to the first press of a Fourdrinier making news print in the Niagara Falls mill of the International Paper Company.

1911

Speeds of paper machines making news print had risen to 700 feet per minute.

1911

On May 10, the first Millspaugh suction first press roll in any paper machine was started up in the mill of the Cliff Paper Company at Niagara Falls, N. Y., and was in the same machine that the suction couch roll was installed in 1909.

1912

Lake Superior Paper Company's Mill at Sault Ste. Marie, Ontario—Two Pusey & Jones machines having wire widths of 196 inches were installed. These were the first machines for making 2½ roll sets of standard width news print paper.

1912

Late in 1912 the Ontario Paper Company at Thorold, Ont., installed two Pusey & Jones machines with 200 inch wide wires. For several years these were the widest news machines.

1913

William Sheahan, superintendent of the Willamette Pulp and Paper Company installed a Sheahan automatic paper carrier on the driers of a paper machine in the mill of that company at Oregon City, Ore.

1914

Great Northern Paper Company at Millinocket, Maine,

installed a Rice, Barton & Fales Machine having a wire 158 inches wide by 92 feet 9 inches long sloping 24 inches. two regular presses; 30—72 inch diameter driers and a Pope uniform speed reel. The table rolls were carried in ball bearings and air was used to handle the paper from the wire to first press. This was the first large installation on a paper machine of anti-friction bearings and the first use of 72 inch diameter driers. This also was the first installation of a Pope uniform speed, drum reel. The Fourdrinier portion of the machine was built in sections each carrying a group of table rolls and could be pulled out on rails. This was the first attempt at a removable Fourdrinier.

1915

The first Nash vacuum pumps installed in a paper mill were in the plants of the S. D. Warren Company in Maine. In March 1915, a pump was installed in conjunction with a 90 inch Millspaugh suction couch roll at Cumberland Mills and in November 1915, a pump was installed in the Gardiner mill to create vacuum in the boxes on the wire of a Fourdrinier machine. Book papers were made on both machines.

1919

In the Pacific Mills Company Plant at Ocean Falls, B. C., Canada, a 204 inch Bagley & Sewall machine ran at 735 feet per minute.

1919

Abitibi Power and Paper Company at Iroquois Falls, Ontario, installed a machine having wire 232 inches wide by 80 feet long, three presses and 30 60 inch driers. This is the widest machine at this time and the first for making a set of three standard width rolls of news print paper. The machine was built by the Charles Walmsley and Company in Bury, England, and was driven through Lloyd-Hutchison type mechanical drives using ropes and belts.

1919

In November the first sectional electric drive in America to be equipped with automatic means of speed regulation was applied by the Westinghouse Electric and Manufacturing Company to a 148 inch Bagley & Sewall Fourdrinier paper machine in the plant of the Gould Paper Company at Lyons Falls, N. Y. The machine had a couch, three regular presses, 32 48 inch diameter driers, one 8-roll calender stack and a 2-drum reel—the speed was from 500 to 600 feet. News print was made on the machine. This machine first went into operation in 1911 and was equipped with individual direct current, spur gear reduction motors with hand operated rheostat controls. The hand controls were replaced in 1919 with automatic means of speed regulation as previously stated.

1920

The first actual installation of a Briner economizer System for the recovery of heat from exhaust vapor from the driers of a paper machine was made in the spring of 1920. This was on a machine in the plant of the New York and Pennsylvania Company at Willsboro, N. Y.

1920

The first commercial installation of anti-friction bearings for driers of a paper machine was in July, 1920, on a tissue machine of the A. P. W. Paper Company at Albany, N. Y. The bearings were of the roller type and built by the Hyatt Roller Bearing Company. The machine was an 88 inch single cylinder, having 28 36 inch diameter driers, running at 375 feet per minute.

1920

The first suction second press roll was installed in a machine built by the Downingtown Manufacturing Company for the Hinde and Dauch Paper Company at Fort Madison, Iowa. The machine had a wire 142 inches wide by 75 feet long, suction couch, two suction and one regular press with 60—42 inch diameter driers. All suction rolls were Millspaugh and 9 point straw paper was made.

1920

The first suction second press roll on news was installed in a 104 inch Fourdrinier of the Crown Willamette Paper Company and was a Millspaugh roll. This machine had a Millspaugh first suction press roll as well.

1921

On April 15, the first commercial news print paper to be made at a speed of 1,000 feet per minute was run in the Millinocket Mill of the Great Northern Paper Company on a Rice, Barton & Fales Machine having a wire 158 inches wide by 95 feet long, sloping 54 inches, a 30 inch straight slice, regular couch, four regular presses, 36—72 inch diameter driers, Pope reel and a two-drum winder. Pope air appliances were used for handling the sheet, beginning with couch and ending with the reel. The machine was operated by a back line shaft driven with ropes from a Corliss type steam engine. The several intake shafts were run by belted quarter turns known as the Ferguson drive.

1921

The Consolidated Water Power & Paper Company at Wisconsin Rapids, Wis., started up a new paper machine built by the Beloit Iron Works, having a wire 160 inches wide by 100 feet long with the Fourdrinier portion removable. This was the first installation where the entire table from the breast roll to the guide roll, inclusive, was removed as a unit and by a motor.

1921

The first commercial news print paper made in Canada at a speed of 1,000 feet per minute was run in the plant of the Laurentide Company at Grand Mere, Quebec, in August, 1921. The machine had a wire 166 inches wide by 103 feet long, sloping 32 inches, slice 36 inches high, suction couch, suction first press, two regular presses, 40—72 inch diameter driers, Pope reel and a two-drum winder. The machine was built by the Dominion Engineering Works and driven by a Harland Sectional Electric Drive with automatic speed control and regulation.

1923

The first Voith high slice or pressure stock inlet with a straight lip in the United States was installed in November on a 196 inch wide machine of the Kimberly-Clark Corporation at Niagara Falls, N. Y. The slice was 28 inches high. About this same time, the first commercial Van de Carr slice with curved lip was being built by the Dominion Engineering Works for a 234 inch wide machine of the Kenora Paper Mills Limited at Kenora, Ontario. This slice was 46 inches high and the machine went into operation in the spring of 1924. The experimental work for the Van de Carr slice was done in 1921 on a 166 inch machine of the Laurentide Company at Grand Mere, Quebec, Canada. This slice was 36 inches high and was the first one of this type to be used on a news print machine on this continent.

1923

A new design high speed shake was installed on a new machine of the Filer Fibre Company at Filer City, Mich. The machine was built by the Beloit Iron Works, has a wire 160 inches wide by 80 feet long and is arranged for speeds up to 800 feet per minute. Kraft papers are made on the machine. This style of shake is in successful operation on a machine having a wire 251 inches wide and arranged for speeds to 1000 feet per minute, making kraft papers. This shake has greatly improved formation of the sheet, thereby permitting increased speed in making the finest book papers as well as kraft papers.

1924

The first suction second press roll for news print in Canada was installed in February in a machine of the Laurentide Company at Grand Mere, Quebec. The size of wire was 124 inches wide by 65 feet long. This was a Kilberry roll and built by Downingtown Manufacturing Company. The machine had a regular couch, regular first, suction second and regular third presses with 28—48 inch driers and ran at approximately 600 feet a minute.

1925

Kenora Paper Mills, Limited, at Kenora, Ontario, installed a Bagley & Sewall machine having a wire 245 inches wide by 75 feet long, suction couch, one suction, two regular presses and 40—60 inch diameter driers. The machine was designed for a maximum speed of 1,000 feet per minute and was operated by a Harland Sectional electric drive. This was the widest machine at that time.

1926

The Canadian International Paper Company at Gatineau, Quebec, Canada, installed a machine built by the Dominion Engineering Works having a wire 270 inches wide by 85 feet long, suction couch, one suction, two regular presses and 46—72 inch diameter driers. The driers of this machine were driven by totally enclosed worm gears. It was the widest machine at that time and was operated by a sectional electric drive made by the Canadian General Electric Company.

1926

In December, the first Minton Vacuum Dryer for drying paper in a vacuum was installed in the mill of Price Brothers & Company, Limited, at Kenogami, Quebec, Canada. The drier contained 20—60 inch diameter by 152 inch face driers and was equipped with one top and one bottom felt together with hand and automatic felt stretchers. The wet end of this machine had a wire 156 inches wide, couch roll and three presses with granite top rolls and rubber covered bottom rolls. The machine ran at about 700 feet per minute and made standard news print paper.

1927

In August, the first suction second press roll in a new three roll wide machine was started up in the plant of the Ste. Anne Paper Company, Ltd., at Beaupre, Quebec, Canada. The wire was 234 inches wide and was equipped with suction couch, and suction first press rolls as well.

1927

With a new 224 inch wide news print machine of the Fort Frances Pulp and Paper Company at Fort Frances, Ontario, Canada, was installed a self-unloading, two drum winder which automatically ejects the finished rolls of paper and lowers the set down to the floor, doing away with the use of crane or hoist. The machine was built by the Beloit Iron Works.

1929

Great Lakes Paper Company, Fort William, Ontario, Canada, started up in May, 1929, a 304 inch Bagley & Sewall machine which runs about 1,070 feet per minute. This is the widest machine yet built and has a wire 304 inches wide by 90 feet long, a suction couch, suction first press and two regular presses, 48—60 inch driers. It is equipped with Sheahan carriers on third press and driers and is operated by a sectional electric drive built by the Canadian General Electric Company.

1931

The speed of paper machines making news print has risen to over 1,200 feet per minute. One of the latest built, three roll wide machines, operating twenty-six days during the month of May, 1931, at an average speed of 1,203 feet per minute on an average trim of 207.5 inches had an average daily production of 141.0 tons of standard news print paper. Maximum and minimum days run 155.9 and 122.2 tons respectively.

Miscellaneous

1920

The first commercial paper of any kind to be made at a speed of 1,000 feet per minute, was run in Wausau Sulphate Fibre Company's plant at Mosinee, Wis., on October 23, 1920. This was a light weight kraft paper, made on a machine built by the Bagley & Sewall Company, having a wire 112 inches wide by 70 feet, 6 inches long, suction couch, suction press, and 16—60 inch diameter driers equipped with a Sheahan carrier. The machine had a mechanical drive with a variable speed motor direct connected in about the center of the line shaft.

1928

The widest Fourdrinier machine for making kraft papers, was built by the Bagley & Sewall Company, for the National Paper Products Company, Port Townsend, Wash. It has a wire 251 inches wide by 90 feet long, Beloit shaking and removable Fourdrinier part. Suction couch and suction first press rolls. Two regular presses. Smoothing press. 44—60 inch driers. 8-roll stack of calenders. Uniform speed reel. Two drum winder with automatic unloader. Westinghouse sectional electric drive. Machine designed to operate at 1200 feet per minute.

1928

The widest Fourdrinier machine for making sulphite bond papers was built by the Bagley & Sewall Company, for the Grays Harbor Pulp and Paper Company, Hoquiam, Wash. It has a wire 202 inches wide by 90 feet long. Shaking and removable Fourdrinier part. Suction couch roll. 3 regular presses. Smoothing press. 40 driers 60 inch diameter. One 8 roll stack of calenders. Uniform speed reel. 2 Drum Winder, with automatic roll unloader. Westinghouse Electric sectional drives. Machine designed to operate at 1000 feet per minute.

1929

The widest Fourdrinier machine making tissue papers is in the Northern Paper Mills at Green Bay, Wis., with a 194 inch wide by 60 feet long wire, running at 850 feet or more per minute on 10 pound tissue. The machine has a special type pickup couch roll, 30 inch diameter suction press and a 30 inch diameter special creping press, 20—60 inch driers, a three-roll calender stack, special reel of the uniform speed type for tissue and creped papers, and a high speed two-drum winder. The drives are enclosed spiral bevel gear type. The driers are operated by an improved chain drive. The machine is entirely equipped with roller bearings with exception of the three calender rolls, and is driven by a variable speed steam turbine. It is arranged for a paper speed of 1,200 feet a minute and has operated at that speed several times. The machine was built by the Beloit Iron Works.

1929

The widest Harper Fourdrinier machine for making tissue papers was built by the Bagley & Sewall Company, for Moyer & Pratt, Inc., Lyonsdale, N. Y. It has a wire 17 inches wide by 45 feet long. Adjustable lip high slice. One press. Pick-up felt attachment. 14 driers 60 inches diameter. 4 roll stack of calenders. Special uniform speed reel. Special two-drum winder. Mechanical driving train, with inclosed spiral bevel gears. Machine designed to operate at 1000 feet per minute.

1930

The widest cylinder machine making board is in the Brown Paper Mill Company's plant at Monroe, La. It was built by the Pusey & Jones Corp. and has five 60 inch diameter by 176 inch face cylinders, six primary and three main presses with 57—60 inch diameter driers.

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IS to maintain quality standards. "S" Brand Silicate of Soda has helped many paper mills accomplish this. Perhaps it will be of service to you likewise.

Without obligation, send for a copy of "Evidence on Paper," a resume of various mills' experience with the use of silicate of soda.

1831—BEGINNING ANOTHER CENTURY—1931

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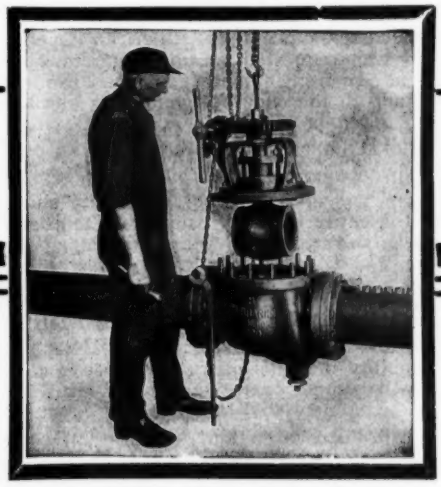
FAIRBANKS NEW "SPHERO" VALVE



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Write for Bulletin V-103

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Sixth and Chestnut Sts., Philadelphia, Pa.

Imports of Paper and Paper Stock

(Continued from page 52)

Russell McCandless, Cubana, Greaker, 250 bls. bleached sulphite.
E. J. Keller Co. Inc., Excelsior, ——, 76 bls. rags.
E. J. Keller Co. Inc., Sac City, ——, 169 bls. rags.

TAMPA IMPORTS

WEEK ENDING OCTOBER 31, 1931

Bank of Montreal, Humberarm, Cornerbrook, 4784 rolls news print.

HOUSTON IMPORTS

WEEK ENDING OCTOBER 31, 1931

Bank of Montreal, Humberarm, Cornerbrook, 3054 rolls news print.

BALTIMORE IMPORTS

WEEK ENDING OCTOBER 31, 1931

International Paper Co., Uraguayo, Dalhousie, 1834 rolls news print.
Baltimore Trust Co., J. Cartier, Dunkirk, 88 bls. rags.
Parsons & Whittemore, Inc., Hannover, ——, 900 bls. mechanical pulp.
Parsons & Whittemore, Inc., City of Hamburg, ——, 1120 bls. sulphite pulp.

NEW LONDON IMPORTS

WEEK ENDING OCTOBER 31, 1931

Lagerloef Trading Co., Odensholm, Wiborg, 4350 bls. sulphate pulp.

PORTLAND IMPORTS

WEEK ENDING OCTOBER 31, 1931

Bulkley Dunton & Co., East Indian, ——, 500 bls. wood pulp, 100 tons.
J. Anderson & Co., East Indian, Stugsund, 3250 bls. sulphate, 650 tons.
Johaneson Wales & Sparre, Inc., East Indian, Sundsvall, 1125 bls. sulphite, 228 tons.
Lagerloef Trading Co., Odensholm, Wiborg, 4430 bls. sulphate; 10560 bls. sulphite.
Lagerloef Trading Co., Odensholm, Kotka, 3060 bls. sulphate; 1335 bls. sulphite.

BOSTON IMPORTS

WEEK ENDING OCTOBER 31, 1931

J. Anderson & Co., East Indian, Stugsund, 1000 bls. sulphite, 200 tons.
Bulkley Dunton & Co., East Indian, ——, 1625 bls. sulphite, 325 tons.
Perkins Goodwin & Co., East Indian, Munksund, 3000 bls. sulphate, 500 tons.
Perkins Goodwin & Co., East Indian, Obbola, 3675 bls. sulphate, 525 tons.
Chase National Bank, East Indian, Obbola, 5250 bls. sulphate, 750 tons.
——, East Indian, Hernosand, 300 bls. sulphate, 50 tons; 900 bls. sulphite, 150 tons.
Johaneson Wales & Sparre, Inc., East Indian, Sundsvall, 1390 bls. sulphite, 242 tons.
Perkins Goodwin & Co. Inc., East Indian, Sundsvall, 1000 bls. sulphite, 202 tons.
M. Gottesman & Co. Inc., Clara, Sebenico, 1600 bls. wood pulp.
J. Anderson & Co., Clara, Trieste, 407 bls. wood pulp.

NEWPORT NEWS IMPORTS

WEEK ENDING OCTOBER 31, 1931

Bulkley Dunton & Co., East Indian, ——, 5750 bls. wood pulp, 1150 tons.
——, East Indian, Hernosand, 900 bls. sulphite, 150 tons; 3240 bls. sulphate, 540 tons.

To Act As General Planning Board

A joint meeting was held in New York, October 30, of the executive committee of the American Paper and Pulp Association and the members of the National Paper Council. Those present from the latter body were: J. B. Shepherd, Cover Paper Manufacturers Association; Col. B. A. Franklin, Writing Paper Manufacturers Association; Donald V. Lowe, Cardboard Manufacturers Association; J. P. Hummel, The Kraft Institute; M. L. Dinkelspiel, Tissue Paper Manufacturers Association; John B. Van Horn, Glazed and Fancy Paper Manufacturers Association; John L. Riegel, Glassine Division of the American Paper and Pulp Association; Walter D. Randall, Book Paper Division of the American Paper and Pulp Association; Carlton W. Smith, Envelope Manufacturers Association of America.

Members of the executive committee attending were: S. L. Wilson, American Writing Paper Company; D. C. Everest, Marathon Paper Mills Company; Neil C. Head, representing A. R. Graustein, International Paper Company; Henry D. Schmidt, Schmidt & Ault Paper Company; and Norman W. Wilson, Hammermill Paper Company.

The meeting was called to discuss the major problems of the industry of common interest to all groups, which embraced marketing, production, raw material and supplies, wages and employment, and legislation. Sub-committees were appointed by President S. L. Wilson who acted as chairman, to make a closer study of the larger problems. The following resolution was adopted:

It is the sense of this group that the interest of every individual producer is tied up with the group of all individual producers of like grades, since overproduction of any grade necessarily brings forth destructive competition and consequent demoralization of the trade; and, further, it has been shown thoroughly and on numerous occasions that competition forces the whole group to adopt finally what even a small number of the group practice in overproduction, price-cutting or breaking down of fair trade practice, presumably in their anticipated interest as individuals, but with eventual disaster to the individuals themselves as well as the group. Therefore, the soundest business practice both for the individual and the group itself demands that intimacy of acquaintance and discussion which group association brings about. In the best interest of the producer, the convertor, the distributor, employees, the general public and in the interest of general recovery of American business,

RESOLVED: That this group individually and collectively will put forward all possible action to bring about organization in all grades of the paper business, and to strengthen already existing organizations.

Approval was given to the recent action of the American Paper and Pulp Association in petitioning President Hoover to postpone all sales of government owned pulpwood in Alaska or elsewhere, where such sales involved new production.

The headquarters office of the American Paper and Pulp Association was requested to undertake to obtain data necessary for a monthly summary of world production and export of pulp to the end that conditions abroad as well as at home might be stabilized.

The National Paper Council recognized its opportunity as well as its obligation under the present situation, and will act from now on as a general planning and advisory board for the entire industry using the facilities of service available through the American Paper and Pulp Association.

May Reopen Oswegatchie Mills

GOUVERNEUR, N. Y., November 2, 1931.—There is a strong possibility that the mills of the Oswegatchie Paper Company will resume operations in the near future and rumors are being circulated freely to that effect. The fact that some work has been done at the plant recently has added strength to the rumors relative to the reopening and the management is being besieged with inquiries. Officials of the company declared that it was too soon to make any predictions about starting up again but they also said that the matter was receiving consideration.

The mill is one of the most modernly equipped in Northern New York, being virtually new. It is also believed that the reopening of the plant would eventually mean a resumption of work at the pulp mill in the village of Emeryville. A considerable portion of the skilled help employed by the company prior to the shutdown are still idle and it is claimed that a resumption of activities would go a considerable way towards improving local conditions.

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For 87 Years Makers of Fine Faced Felts For Papermakers

AMIJEL

AMIJEL is not an ordinary beater starch—it is a specially processed, pure gelatinized starch—ready for use. Does not have to be cooked. Just add in dry form to the beater.

CORN PRODUCTS REFINING COMPANY
17 Battery Place, New York City

Air receiver welded by "shielded-arc" method

Nothing is too Difficult—
for Steel Plate Specialists

Bear this in mind: *Nothing is too difficult for steel plate specialists*—such as Downingtown. We are equipped to make Tanks, Stacks, Digestors, Shells, for the Paper Industry, of ordinary carbon steel or chromium iron alloys.

We fabricate of Everdur, 18 & 8—nickel-clad steel, of riveted or welded construction. Furthermore, our experience (pioneers in the field) enables us to give you an engineering service that will be helpful. We do certain classes of erection work in the field as well. Get in touch with us for sureness of knowledge, prompt deliveries, quality output, and fair price.

DOWNINGTOWN IRON WORKS
Pioneers in Chrome — *Iron Fabrication*

1864 **1931**

"EXCELSIOR" FELTS

for every grade of

PULP AND PAPER

We continue to maintain at the top the quality of Excelsior Felts, as we have done since we, as pioneers, made the first endless paper machine felts manufactured in America.

Seamless felts for fast running.
Satin Style felts for finish.
Special felts to meet every condition.
Send us your felt problems.

KNOX WOOLEN COMPANY
CAMDEN, MAINE

SOLD BY

BULKLEY, DUNTON & COMPANY

75-77 Duane St., N. Y., and direct

New York Market Review

Office of the PAPER TRADE JOURNAL,
Wednesday, November 4, 1931.

Conditions in the local paper market are improving slightly. Demand for the various standard grades of paper is expanding steadily and supplies are moving into consumption in fairly heavy volume. Sales forces of the leading paper organizations are becoming more optimistic regarding the future. The price situation is somewhat steadier.

News print operations are being maintained in sufficient volume to take care of current needs, both in Canada and the United States. Local sales continue below the level of last year. Stocks of news print paper at the mills on September 30 totalled 83,968 tons, which was equivalent to 4.6 days average output.

Little improvement was noticed in the paper board market. Demand for box board was only moderately active. The price situation continues unsatisfactory. The fine paper market is exhibiting a stronger tone with the approach of the Yule-tide season. Quietness reigns in the coarse paper market and prices on kraft wrapping paper continue easy.

Mechanical Pulp

Steadiness prevails in the mechanical pulp market, although the prevailing demand is restricted. Offerings of both domestic and imported mechanical pulp, however, are not excessive and the industry is considered in a sound statistical position. Prices are generally holding to previously quoted levels and there is little talk of concessions around.

Chemical Pulp

Although the foreign exchange situation has created a lot of uncertainty in the chemical pulp market, no radical changes have been reported so far. Demand for the various grades of domestic and foreign chemical pulp is showing some signs of improvement of late. Prices are holding to the recently revised schedule, in most instances.

Old Rope and Bagging

The old rope market is not arousing much interest at present. Paper mill demand for both domestic and imported old manila rope is below normal for the time of year. Small mixed rope continues to move slowly. Prices are nominal. The bagging market is irregular. While roofing bagging is in seasonal request, scrap and gunny are listless.

Rags

Paper mill demand for domestic rags continues along routine lines. Although the request for roofing grades is about normal for the time of year, cotton cuttings generally are moving rather slowly. Mixed rags are spotty. The imported rag situation is unchanged. No further price changes on either domestic or imported rags have been recorded.

Waste Paper

Board mill demand for the lower grades of paper stock is still fairly persistent and strictly folded news and No. 1 mixed paper are showing particular strength, with offerings limited. Old kraft machine compressed bales, however ,are weaker, and are now selling at from 1.15 to 1.25. The better grades of paper stock are generally steady.

Twine

The position of the local twine market is practically unchanged. Demand for the various grades is well up to the average of the preceding year, and the outlook for the immediate future is promising. Despite keen competition for desirable orders prices are generally holding to formerly quoted levels.

BOSTON DEMAND IMPROVED

(Continued from page 22)

The Train Smith Co., handlers of paper mill supplies, including wood pulp, are very comfortably located in their new office in the Cummings Building, 261 Franklin street, where they will be glad to have their old friends and new call personally. Their new quarters are larger with better facilities.

The Boston Club of Printing House Craftsmen is sponsoring an exhibition of printed advertising from the Pacific Coast, together with a display of printed advertising from Germany, England, France and Czechoslovakia. The exhibition is in the gallery of the Boston City Club from October 26 to November 7. The committee in charge is composed of Arthur V. Howland, chairman, Charles R. Capon, James Garfield Clarke, Joseph P. Donovan, Philip J. McAteer and G. Gehman Taylor. It is the intention of this committee to sponsor a number of exhibitions during the winter season.

The Storrs & Bement Company has added to its lines Worthy Letter, a high grade laid writing paper made by the Worth Paper Company Association, West Springfield, Mass.

A sales meeting of the Storrs & Bement Company was held Saturday morning. President William N. Stetson, Jr., and General Manager John H. Brewer discussed company matters.

Frank McAllister, sales manager for the Waterfalls Paper Mills, East Poland, Me., recently called on the Boston trade for the first time in four months, receiving a very hearty welcome. Mr. McAllister had been at a hospital, where he underwent a major operation.

Lee Hulett, sales manager for the Crocker-McElwain Company, Holyoke, Mass., has been calling on the trade in the interests of that company's new bond paper, Dial Bond.

Edward Kerr, vice-president of the Davey Company, Downingtown, Pa., has returned to his home in that place after a hunting trip of about two weeks to New Brunswick, Me.

Arthur E. Ham & Sons have been sending out an unusually large number of mailing pieces, believing that one should be consistent enough to take his own medicine. The question is asked that as quite a percentage of the paper merchants' business and some of the best of it comes from the use of direct-by-mail campaigns, why this isn't a good time to try to convince the printer and the advertiser that paper merchants believe in what brings them some of their best business.

WOOD PULPS

All Grades

CHICAGO OFFICE:
1460 Conway Building,
111 West Washington St.

Acer, McLernon & Company Limited

CANADA CEMENT BUILDING
MONTREAL, P. Q.

Grind calender rolls this accurate, low-cost way!

KEEPING calender rolls free from blemishes is made easier with Oakite Grinding Compound. Its high lubricating and cooling qualities permit fast, accurate work. Wheels are kept free-cutting . . . loading is retarded.

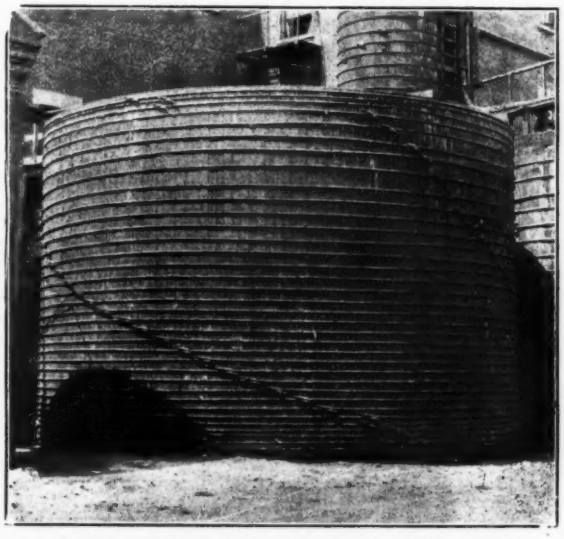
Leading mills the country over also find in Oakite materials the safest, most economical means of washing felts, cleaning Fourdrinier wires and taking care of all paper mill cleaning work.

Talk over with our nearby Service Man the many ways in which Oakite materials can help you save money. A post card to us brings him to your mill. No obligation.

Manufactured only by
OAKITE PRODUCTS, INC., 48A Thames St., NEW YORK, N. Y.

OAKITE
TRADE MARK REG. U.S. PAT. OFF.
Industrial Cleaning Materials and Methods

WOOD TANKS TILE



Blow Pit and Vomit Stack at Marathon Paper Company Mill

NO TANK is too large nor none too small for our tank-making equipment and stocks. We cater to the needs of the paper industry. Blow Pits, Vomit Stacks, Stock Tanks, Acid Storage Tanks, Stuff Chests, Agitators, etc. See our Condensed Catalog in Paper and Pulp Mill Catalog. Ask us about our Glazed Tile Tanks.

KALAMAZOO TANK AND SILO CO.
KALAMAZOO, MICHIGAN
Tank Builders Since 1867

LAND O'LAKES CASEIN

High quality Casein made under strict laboratory control. Excellent solubility. Satisfactory viscosity. Write for sample and quotations.

LAND O' LAKES CREAMERIES, INC., MINNEAPOLIS, MINN.
New York City - Chicago - Boston - Philadelphia - Pittsburgh - Syracuse

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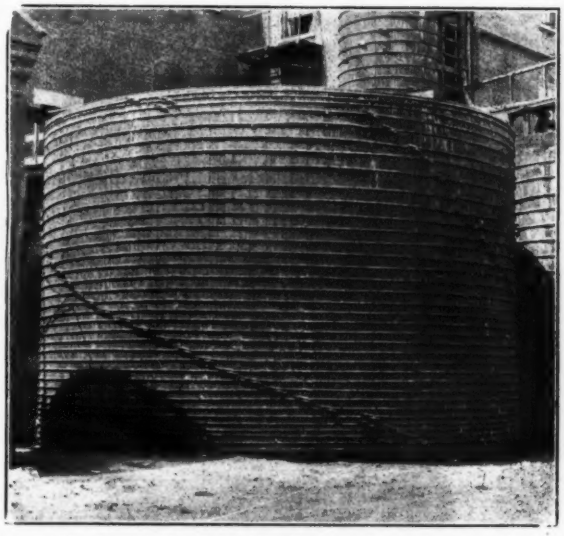

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Miscellaneous Markets

Office of the PAPER TRADE JOURNAL,
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BLANC FIXE.—Conditions in the blanc fixe market are fairly satisfactory. Prices are holding to schedule. The pulp is quoted at from $42.50 to $45.00 per ton, while the powder is selling at from 3¾ cents to 4½ cents per pound, in barrels, at works.

BLEACHING POWDER.—Steadiness prevails in the bleaching powder market. The contract movement is moderately active. Prices are generally holding to formerly quoted levels. Bleaching powder is selling at from $1.75 to $2.00 per 100 pounds, in drums, at works.

CASEIN.—No radical changes were reported in the casein market. Domestic casein is quoted at 7 cents and finely ground at 7½ cents per pound. Argentine standard ground is selling at 8½ cents and finely ground at 9½ cents per pound, all in bags, car lot quantities.

CAUSTIC SODA.—The caustic soda market is exhibiting a fairly strong undertone. Prices are steady. Solid caustic soda is quoted at from $2.50 to $2.55; while the flake and the ground are selling at from $2.90 to $2.95 per 100 pounds, in large drums, at works.

CHINA CLAY.—Trading in the china clay market is fairly active. The contract movement is seasonal. Imported china clay is still quoted at from $11 to $18 per ton, ship side; while domestic paper making clay is selling at from $7 to $11 per ton, at mine.

CHLORINE.—Demand for chlorine was light during the past week. The contract movement, however, was fairly heavy. Prices are holding to schedule. Chlorine is quoted at $1.75 per 100 pounds, in tanks, or multi-unit cars, in ton lots, or over, at works.

ROSIN.—The rosin market is steady to firm. The grades of gum rosin used in the paper mills are now quoted at from $4.00 to $4.10 per 280 pounds, in barrels, at works. Wood rosin is selling at $3.70 per 280 pounds, in barrels, on dock, car lot quantities.

SALT CAKE.—Most of the business transacted in the salt cake market was routine. Salt cake is still quoted at from $15 to $16; chrome salt cake at from $13 to $14 per ton, in bulk, at works. Imported salt cake is selling at from $15 to $15.50 per ton, ship side.

SODA ASH.—Contract shipments of soda ash are moving into consumption at a fairly steady pace. Prices are holding to schedule. Quotations on soda ash, in car lots, at works, per 100 pounds, are as follows: in bulk, $1.00; in bags, $1.25; and in barrels, $1.38.

STARCH.—The starch market continues in a sound position. Production is being maintained in sufficient volume to take care of current requirements. Special paper making starch is quoted at $2.67, in bags; and at $2.94 per 100 pounds, in barrels, at works.

SULPHATE OF ALUMINA.—Paper mill demand for sulphate of alumina is fairly persistent. The contract movement is normal. Commercial grades are quoted at from $1.25 to $1.40; while iron free is selling at from $1.90 to $2.05 per 100 pounds, in barrels, at works.

SULPHUR.—The sulphur market continues quiet. Sulphur is quoted at $18 per long ton on orders of 1,000 tons, or over, on yearly contracts; and at $20 per ton for any smaller quantity over that period. On spot and near by car loads the quotation is $21 per ton.

TALC.—Supplies of talc are going forward in fairly good volume for the time of year. Prices remain unchanged. Domestic talc is quoted at from $16 to $18 per ton, in bulk, at mine; while imported talc is selling at from $18 to $22 per ton, in bags, ship side.

Market Quotations

Paper

(F. o. b. Mill)

Ledgers	7.50	@	38.00
Bonds	6.00	@	53.25
Writings—			
Extra Superfine	14.00	@	32.00
Superfine	14.00	@	32.00
Tub sized	10.00	@	15.00
Engine sized	6.75	@	11.00
Book, Cased—			
S. & S. C.	5.25	@	—
M. F.	5.00	@	—
Coated and Enamel	6.75	@	10.25
Lithograph	7.25	@	11.75
Tissues—Per Ream—			
White No. 1	.65	@	.70
Anti-Tarnish M. G. only	.65	@	.70
Colored	.70	@	.90
White No. 2	.55	@	.60
Kraft	.65	@	.70
Manila	.55	@	.60
Manila—			
No. 1 Jute	9.00	@	9.25
No. 2 Jute	7.75	@	8.50
No. 1 Wood	4.00	@	5.25
No. 2 Wood	3.50	@	4.00
Butchers	3.37½	@	—
Fibre Papers—			
No. 1 Fibre	4.25	@	5.50
No. 2 Fibre	4.00	@	4.75
Common Bogus	1.50	@	3.00
Screenings	2.00	@	3.00
Card Middles	4.00	@	5.00
Glassine—			
Bleached, basis 25 lbs., No. 1	.09¾	@	—
No. 2	.11¼	@	—
Bleached, basis 20 lbs.	.11¾	@	—
(Delivered New York)			
News, per ton—			
Rolls, contract	57.00	@	—
Rolls, spot	57.00	@	—
Sheets	62.00	@	—
Side Runs	42.00	@	46.00
Kraft—			
No. 1 Domestic	4.50	@	5.75
No. 2 Domestic	3.00	@	4.25
Southern	2.75	@	4.00
Imported	6.00	@	7.00
Boards—per ton—			
News	26.00	@	27.50
Straw	34.50	@	45.00
Chip	25.00	@	27.50
Binders' Boards	62.00	@	70.00
Standard 85 Test Liner	32.50	@	35.00
Sgl. Mla. Ll. Chip	37.50	@	42.50
(F. o. b. Mill)			
Wood Pulp Boards	70.00	@	80.00

Mechanical Pulp

(On Dock)

No. 1 Imported—			
Moist	24.00	@	26.00
Dry	25.00	@	26.50
(F. o. b. Mill)			
No. 1 Domestic	25.00	@	30.00

Chemical Pulp

(On Dock, Atlantic Ports)

Sulphite (Imported)—			
Bleached	2.40	@	3.50
Easy Bleaching	2.00	@	2.10
No. 1 strong unbleached	1.75	@	2.15
Mitscherlich unbleached	1.80	@	2.10
No. 2 strong unbleached	1.70	@	1.80
No. 1 Kraft	1.50	@	1.75
No. 2 Kraft	1.40	@	1.50
Sulphate—			
Bleached	2.75	@	3.25
(F. o. b. Pulp Mill)			
Sulphite (Domestic)—			
Bleached	2.25	@	4.50
Easy Bleaching	2.15	@	2.35
News	1.80	@	2.50
Mitscherlich	2.40	@	2.55
Kraft (Domestic)	1.60	@	2.75
(Delivered Paper Mills)			
Soda Bleached	2.75	@	—

Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—			
New White, No. 1	6.50	@	7.00
New White, No. 2	5.50	@	6.00
Silesias No. 1	5.25	@	5.50
New Unbleached	7.00	@	7.50
New Blue Prints	4.00	@	4.50
New Soft Blacks	3.50	@	4.00
Blue Overall	5.00	@	5.25
Fancy	3.00	@	3.50
Washables	2.75	@	3.00
Mixed Khaki Cuttings	3.50	@	4.00
Pink Corset Cuttings	5.00	@	5.50
O. D. Khaki Cuttings	4.50	@	4.75
Men's Corduroy	3.00	@	3.50
New Mixed Blacks	3.00	@	3.25
Old Rags			
White, No. 1—			
Repacked	5.25	@	5.75
Miscellaneous	4.25	@	4.75
White, No. 2—			
Repacked	3.00	@	3.50
Miscellaneous	2.30	@	2.50
St. Soiled, White	1.50	@	1.75
Thirds and Blues—			
Repacked	2.25	@	2.50
Miscellaneous	1.65	@	1.85
Black Stockings	3.25	@	3.75
Roofing Rags—			
Cloth Strippings	1.25	@	1.30
No. 1	1.25	@	1.30
No. 2	.90	@	1.00
No. 3	.70	@	.80
No. 4	.65	@	.70
No. 5A	.50	@	.60

Foreign Rags

New Rags

New Dark Cuttings	1.75	@	1.85
New Mixed Cuttings	2.00	@	2.20
New Light Silesias	4.50	@	4.75
Light Flannelettes	4.25	@	4.50
Unbleached Cuttings	6.00	@	6.25
New White Cuttings	5.25	@	5.50
New Light Oxfords	4.00	@	4.25
New Light Prints	3.00	@	3.25
Old Rags			
No. 1 White Linens	6.00	@	6.25
No. 2 White Linens	5.00	@	5.25
No. 3 White Linens	3.50	@	4.00
No. 4 White Linens	2.00	@	2.50
No. 1 White Cotton	4.25	@	4.75
No. 2 White Cotton	3.25	@	3.50
No. 3 White Cotton	2.50	@	3.00
No. 4 White Cotton	1.45	@	1.60
Extra Light Prints	1.90	@	2.10
Ord. Light Prints	1.60	@	1.75
Med. Light Prints	1.40	@	1.55
Dutch Blue Cottons	1.50	@	1.60
French Blue Linens	2.25	@	2.40
German Blue Linens	2.00	@	2.10
German Blue Cottons	1.35	@	1.40
Checks and Blues	1.25	@	1.30
Lindsay Garments	.90	@	1.00
Dark Cottons	.70	@	.75
Old Shopperies	.65	@	.70
New Shopperies	.60	@	.65
French Blues	1.40	@	1.50

Old Rope and Bagging

(Prices to Mill f. o. b. N. Y.)

Gunny No. 1—			
Foreign	1.50	@	1.55
Domestic	1.60	@	1.65
Wool Tares, light	1.05	@	1.10
Wool Tares, heavy	1.10	@	1.15
Bright Bagging	1.05	@	1.10
Small Mixed Rope	.90	@	1.00
Manila Rope—			
Foreign	1.65	@	1.75
Domestic	1.75	@	1.90
New Burlap Cut	1.70	@	1.80
Hessian Jute Threads—			
Foreign	2.60	@	2.75
Domestic	2.80	@	3.00

Old Waste Papers

(F. o. b. New York)

Shavings—			
Hard, white, No. 1	2.65	@	2.85
Hard, white, No. 2	2.10	@	2.20
Soft, white, No. 1	2.10	@	2.20
White envelope cuttings	2.35	@	2.50
Flat Stock—			
Stitchless	.70	@	.80
Overissue Mag	.70	@	.80
Solid Flat Book	.60	@	.70
Crumpled No. 1	.48	@	.53
Solid Book Ledger	1.75	@	1.85
Ledger Stock	.65	@	.75
New B. B. Chips	.20	@	.30
Manilas—			
New Env. Cut	1.75	@	1.85
New Cuttings	1.40	@	1.50
Extra No. 1 old	1.10	@	1.25
Print	.45	@	.50
Bogus Wrapper	.45	@	.50
Container	.30	@	.35
Old Kraft Machine—			
Compressed bales	1.15	@	1.25
News—			
No. 1 White News	1.60	@	1.65
Strictly Overissue	.35	@	.45
Strictly Folded	.35	@	.40
No. 1 Mixed Paper	.25	@	.30
Common Paper			Nominal

Arthur D. Little, Inc.

Chemists and Engineers to the Pulp and Paper Industry for over Forty Years

Laboratories and Experimental Mill

30 CHARLES RIVER ROAD, CAMBRIDGE, MASS.

Hardy S. Ferguson & Co.

Consulting Engineers

200 Fifth Avenue, New York City

Harry S. Ferguson .....Member A.S.C.E., A.S.M.E., E.I.C.
Moses H. Teaze.....Member A.S.M.E., E.I.C.
J. Wallace Tower.....Member A.S.C.E., A.S.M.E.

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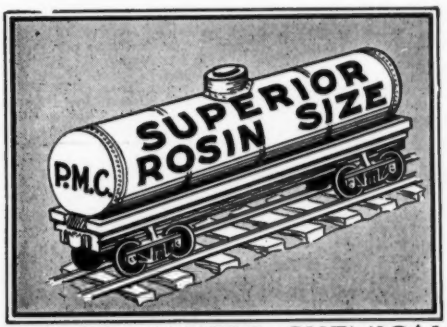
Steam and Hydro-electric Power Plants.
Dams and other Hydraulic Structures.



20 plants to serve You

PAPER MAKERS CHEMICAL CORP.
Kalamazoo, Michigan

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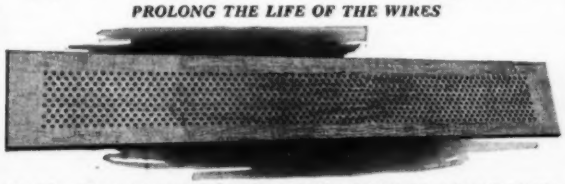

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Twines

(F. o. b. Mill)

Cotton—			
B. C., 18 basis	.30	@	.32
No. 1	.20	@	.22
No. 2	.19	@	.20
No. 3	.17	@	.18
A. Italian, 18 basis	.36	@	.37
Finished Jute—			
Dark, 18 basis	.18	@	.20
Light, 18 basis	.20	@	.22
Jute Wrapping, 3-6 Ply—			
No. 1	.13	@	—
No. 2	.11	@	—
Tube Rope—			
4-ply and larger	.09	@	—
Fine Tube Rope—			
4-ply	.11	@	—
3-ply	.12	@	—
2-ply	.13	@	—
Paper Makers Twine Balls	.07	@	—
Box Twine, 2-3 ply	.07	@	.08
Jute Rope	.09	@	.10
Amer. Hemp, 6	.27	@	.29
Java Sisal—			
No. 1 Basis	.10	@	—
No. 2 Basis	.09	@	—
New Zealand Sisal	.10	@	—
Sisal Lath Yarn—			
No. 1	.12	@	.14
No. 2	.10	@	.12
Manila Twine	.21	@	.22

CHICAGO

Paper

(F. o. b. Mill)

Rag Bond	.30	@	.53¾
Water Marked Sulphite Bond	.09	@	.12
Sulphite Bond	.06¾	@	.11
Superfine Writing	.18	@	.24
No. 1 Fine Writing	.14	@	.18
No. 2 Fine Writing	.12	@	.14
No. 3 Fine Writing	.08½	@	.12
No. 1 M. F. Book	.06½	@	.07¼
No. 2 M. F. Book	.05¼	@	.06¼
No. 1 S.&S.C. Book	.06¼	@	.07¾
No. 2 S.&S.C. Book	.05¾	@	.06½
Coated Book	.07½	@	.12
Coated Label	.07½	@	.10
No. 1 Manila	.04¼	@	.05¾
No. 1 Fibre	.04¾	@	.05¼
No. 2 Manila	.04¼	@	.04¾
Butcher's Manila	.04	@	.04½
No. 1 Kraft	4.50	@	5.00
Southern Kraft	3.00	@	3.25
No. 2 Kraft	3.00	@	3.25
Wood Tag Boards	.04¼	@	.06¼
Sulphite Screenings	.03	@	.03¼
Manila Tissue	.07	@	.07¼
White Tissue	.07¼	@	.07½
(Delivered Central Territory)			
News, per ton—			
Rolls, contract	57.00	@	—
Sheets	62.00	@	—
Boards, per ton—			
Plain Chip	30.00	@	35.00
Solid News	32.50	@	37.50
Manila Lined Chip	40.00	@	45.00
Container Lined—			
85 Test	50.00	@	55.00
100 Test	55.00	@	60.00

Old Papers

(F. o. b. Chicago)

Shavings—			
No. 1 Hard White	1.95	@	2.05
No. 1 Soft White	1.80	@	1.90
Ledger & Writings	.60	@	.70
Solid Books	.60	@	.70
Blanks	1.40	@	1.55
Krafts	1.15	@	1.25
New Kraft Cuts	1.30	@	1.45
Manila Env. Cuts	1.40	@	1.50
Ex. No. 1 Manila	1.25	@	1.30
Print Manila	.40	@	.45
Overissue News	.40	@	.50
Old Newspapers—			
No. 1	.35	@	.45
No. 2	.30	@	.35
Mixed Papers—			
No. 1	.25	@	.30
No. 2	.20	@	.25
Roofing Stocks—			
No. 1	30.00	@	—
No. 2	28.00	@	—

PHILADELPHIA

Paper

(F. o. b. Mill)

Bonds	.05	@	.40
Ledgers	.07	@	.40
Writings—			
Superfine	.12	@	.18
Extra fine	.16	@	.22
Fine	.15	@	.26
Fine, No. 2	.12	@	.25
Fine, No. 3	.07	@	.20
Book, M. F.	.04¾	@	.07
Book, S. S. & C.	.05	@	.07½
Book, Coated	.07	@	.16
Coated Lithograph	.06	@	.11
Label	.07	@	.11
No. 1 Jute Manila	.07	@	.09
Manila Sul., No. 1	.03¼	@	.05½
Manila No. 2	.03	@	.04
No. 1 Kraft	.05¼	@	.06
No. 2 Kraft	.03¾	@	.04¼
Southern Kraft No. 1	—	@	.04
Southern Kraft No. 2	—	@	.03¾
Common Bogus	.03	@	.04
(Delivered Philadelphia)			
News Print Rolls	58.00	@	62.00
Straw Board	50.00	@	—
News Board	30.00	@	32.00
Chip Board	25.00	@	27.50
Wood Pulp Board	85.00	@	95.00
Binder Boards—			
No. 1, per ton	73.00	@	75.00
No. 2, per ton	63.00	@	65.00
Carload lots	62.00	@	67.00
Tarred Felts—			
Regular	52.25	@	54.25
Slaters (per roll)	.84	@	.94
Best Tarred, 1-ply (per roll)	1.95	@	2.10
Best Tarred, 2-ply (per roll)	1.50	@	1.60
Best Tarred, 3-ply	2.00	@	2.25

Domestic Rags (New)

(Price to Mill, f. o. b. Phila.)

Shirt Cuttings—			
New White, No. 1.	.06	@	.06½
New White, No. 2.	.05	@	.05½
Light Silesias	.05	@	.05½
Silesias, No. 1	.06	@	.08
Black Silesias, soft.	.05	@	—
New Unbleached	.06	@	.06½
Washable, No. 1	.02½	@	.03
Blue Overall	.05	@	.05½
Cottons—According to grades—			
Washable, No. 2	.02	@	.02½
New Blue	.02	@	.02½
Fancy	.03	@	.03¼
New Black Soft	.03	@	.03½
New Light Seconds	.01¾	@	.02
New Dark Seconds	1.85	@	2.00
Khaki Cuttings—			
No. 1 O. D.	.04½	@	.05
No. 2 Mixed	.03½	@	.04
Corduroy	.02½	@	.03
New Canvas	.06½	@	.07
New Black Mixed.	.03	@	.03½

Domestic Rags (Old)

White No. 1—			
Repacked	3.50	@	4.00
Miscellaneous	2.25	@	2.75
M. G.	4.50	@	—
Thirds and Blues—			
Miscellaneous	1.25	@	1.50
Repacked	1.75	@	2.00
Black Stockings (Export)	3.80	@	4.00
Roofing Stock—			
Foreign No. 1	1.15	@	1.25
Repacked	.80	@	.90

Bagging

(F. o. b. Phila.)

Gunny, No. 1—			
Foreign	1.50	@	1.60
Domestic	1.75	@	—
Manila Rope	2.25	@	2.50
Sisal Rope	1.25	@	1.50
Mixed Rope	1.10	@	1.25
Scrap Burlaps—			
No. 1	1.50	@	1.60
No. 2	1.10	@	1.20
Wool Tares, heavy	3.00	@	—
Mixed Strings	1.15	@	1.25
No. 1 New Light Burlap	2.50	@	2.75
New Burlap Cuttings	2.00	@	2.25

Old Papers

(F. o. b. Phila.)

Shavings—			
No. 1 Hard White.	2.30	@	2.50
No. 2 Hard White.	2.00	@	2.25
No. 1 Soft White.	1.75	@	2.00
No. 2 Soft White.	1.40	@	1.50
No. 1 Mixed.	.75	@	.80
No. 2 Mixed.	.50	@	.55
Solid Ledger Stock.	1.35	@	1.40
Writing Paper.	.80	@	1.00
No. 1 Books, heavy.	.70	@	.75
No. 2 Books, light.	Normal		
No. 1 New Manila.	1.60	@	1.75
No. 1 Old Manila.	1.25	@	1.30
Print Manila	.50	@	.55
Container Manila	.40	@	.45
Old Kraft	1.10	@	1.20
Common Paper	.30	@	.40
No. 1 Mixed Paper.	.35	@	.45
Straw Board, Chip.	.35	@	.45
Binders Board. Chip.	.35	@	.45
Corrugated Board	.45	@	.50
Overissue News.	.50	@	.55
Old Newspaper	.30	@	.35

BOSTON

Paper

(F. o. b. Mill)

Ledgers—			
Sulphite	.07¾	@	.12½
Rag Content	.15	@	.30
All Rag	.38	@	.52½
Bonds—			
Sulphite	.06½	@	.11½
Rag content	.15	@	.30
All rag	.36½	@	.65
Writings	.06½	@	.20
Superfines	.11	@	.31
Book, Super	.06	@	.09
Book, M. F.	.05½	@	.08½
Book, Coated	.08½	@	.18
Coated Litho	.09	@	.12
Label	.09½	@	.15
Jute Manila No. 1	.11	@	.13
Manila, Sul. No. 1	.04¾	@	.06¼
Manila, Sul. No. 2	.03¾	@	.04½
No. 1 Kraft	.04½	@	.05½
No. 2 Kraft	—	@	.03
(F. o. b. Boston)			
Southern Kraft	—	@	.03
(F. o. b. destination in carload lots, f. o. b. mill in less than carload lots.)			
Common Bogus	.02	@	.02¾
(Delivered New England points)			
News Print, rolls	—	@	56.50
Straw Board, rolls	.009	@	52.50
Straw Board in Sheets, basis 35s to 70s	—	@	50.00
Filled News Board	.27.50	@	30.00
Chip Board	.27.50	@	—
Chip Board (Creasing)	.27.50	@	30.00
Single Manila Lined Chip	.40.00	@	45.00
Single White, Patent Coated News Board—			
Binder	.52.50	@	60.00
Wood Pulp Board	.70.00	@	75.00
Binder Boards	.67.50	@	75.00

Old Papers

(F. o. b. Boston)

Shavings—			
No. 1 Hard White	2.75	@	3.50
No. 2 Hard White	2.25	@	2.50
No. 1 Soft White	1.90	@	2.10
No. 2 Mixed	.60	@	.65
No. 1 Mixed	.90	@	1.00
Solid Ledger Books	1.75	@	2.00
Overissue Ledger Stock	1.35	@	1.60
Mixed Ledgers	1.15	@	1.30
No. 1 Books, heavy	.65	@	.75
No. 1 Books, light	—	@	.45
Crumpled Stitchless Book Stock	1.00	@	1.25
Manila Env. Cuttings	1.85	@	2.00
No. 1 Old Manila	—	@	1.00
White Blank News	1.50	@	1.60
Kraft No. 1	100	@	1.10
Manila	.90	@	1.00
No. 1 Mixed Paper	.25	@	.35
Print Manila	.40	@	.45
Overissue News	.40	@	.45
Old Newspapers	.32½	@	.40
Box Board, Chip	.20	@	.25
Corrugated Boxes	.37½	@	.47½

Bagging

(F. o. b. Boston)

Gunny No. 1—			
Foreign	—	@	1.25
Domestic	1.40	@	1.50
Manila Rope—			
Foreign	1.50	@	1.75
Domestic	1.75	@	2.00
Transmission Rope	1.25	@	1.40
Mixed String	.35	@	.40
Jute Rope	1.00	@	1.15
Jute Carpet Threads	.75	@	.90
Bleachery Burlap	2.50	@	2.75
No. 1 Scrap Burlap	1.10	@	1.25
Scrap Sisal	1.35	@	1.45
Scrap Sisal for shredding	1.50	@	1.60
Wool Tares, heavy	1.25	@	1.30
New Burlap Cutting	1.50	@	1.25
Australian Pouches	2.00	@	2.25
Heavy Baling Bagging	1.50	@	1.60
Paper Mill Bagging	.90	@	1.05
Bagging No. 2	.50	@	—
No. 1 Burlap	—	@	3.50

Domestic Rags (New)

(F. o. b. Boston)

Shirt Cuttings—			
New White No. 1.	.06½	@	.07
New White No. 2.	—	@	.06
Silesias No. 1	.06	@	.06¼
New Black Silesias	.02¼	@	.02¾
New Unbleached	—	@	.08
Fancy	.04	@	.04¼
Washable	.04	@	.04½
Cottons—According to grades—			
Blue Overalls	.05	@	.06
New Black, soft	.04	@	.04¼
Khaki Cuttings	.04	@	.04½
O. D. Khaki	.04½	@	.05
Corduroy	.03	@	.03½
New Canvas	.08	@	.08¼

Domestic Rags (Old)

(F. o. b. Boston)

Canvas	.04½	@	—
White No. 1—			
Repacked	4.75	@	5.25
Miscellaneous	—	@	4.00
White No. 2—			
Repacked	.04½	@	.05
Miscellaneous	.03½	@	.04
Twos and Blues	2.50	@	2.75
Thirds and Blues—			
Repacked	1.60	@	1.80
Miscellaneous	1.00	@	1.20
Black Stockings	3.25	@	3.50
Roofing Stock—			
No. 1	—	@	.63
No. 2	—	@	.58
No. 3	—	@	.53

Foreign Rags

(F. o. b. Boston)

Dark Cottons	—	@	.70
New No. 1 White Shirt Cuttings	6.50	@	6.75
Dutch Blues	—	@	1.80
New Checks & Blues	4.00	@	4.50
Old Fustians	1.55	@	1.65
Old Linsey Garments	.80	@	.90

TORONTO

Paper

(F. o. b. Mill)

Bond—			
No. 1 Sulphite	.10¾	@	—
No. 2 Sulphite	08½	@	—
No. 1 Colored	.11¾	@	—
No. 2 Colored	.09	@	.10½
Ledgers (sulphite)	—	@	—
Ledgers, No. 1	.36	@	—
Ledgers, No. 2	.27	@	—
Writing	.09½	@	.10
Book—			
No. 1 M. F. (carloads)	6.65	@	—
No. 3 M. F. (carloads)	6.20	@	—
No. 1 S. C. (carloads)	7.15	@	—
No. 3 S. C. (carloads)	6.65	@	—
No. 4 S. C. (carloads)	5.70	@	—
No. 1 Coated and Litho	12.50	@	—
No. 2 Coated and Litho	11.50	@	—
No. 3 Coated and Litho	10.00	@	11.50
Coated tinted	14.00	@	—
Wrapping—			
Rag Brown	4.60	@	—
White Wrap	5.10	@	—
"B" Manila	5.00	@	—
No. 1 Manila	5.60	@	—
Fiber	5.60	@	—
Kraft, M. F.	5.98	@	—
Kraft No. 2	5.60	@	—

(Delivered Toronto)

News, per ton—			
Rolls (contract)	56.50	@	57.00
Sheets	61.50	@	—

Pulp

(F. o. b. Mill)

Ground Wood	30.00	@	32.00
Sulphite easy bleaching	50.00	@	—
Sulphite, news grade	44.00	@	—
Sulphite, bleached	62.50	@	75.00
Sulphate	60.00	@	—

Old Waste Paper

(In carload lots, f. o. b. Toronto)

Shavings—			
White Env. Cut	2.60	@	—
Soft White	2.40	@	—
White Blk. News	1.40	@	—
Book and Ledger—			
Flat Magazine and Book Stock (old)	.90	@	—
Light and Crumpled Book Stock	1.05	@	—
Ledgers and Writings	—	@	—
Manilas—			
New Manila Cut	1.40	@	—
Printed Manilas	.50	@	—
Kraft	1.65	@	—
News and Scrap—			
Strictly Overissue	.50	@	—
Strictly Folded	.45	@	—
No. 1 Mixed Paper	.35	@	—

Domestic Rags

(Price to mills, f. o. b. Toronto)

No. 1 White Shirt Cuttings	.09½	@	.10
Fancy Shirt Cuttings	.06	@	.06¼

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SIXTIETH YEAR

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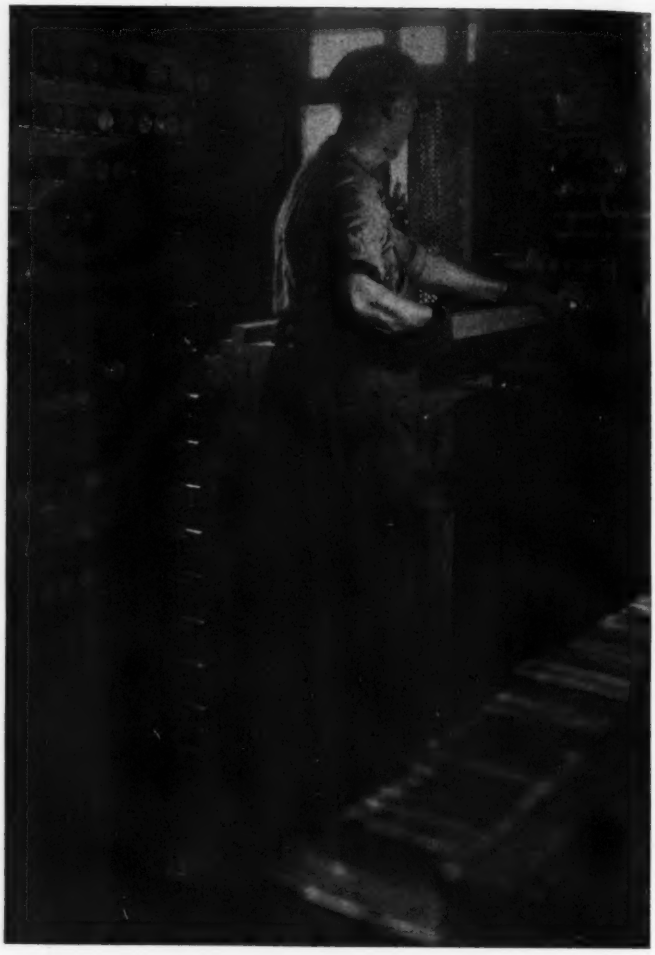

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